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DEPARTMENT OF HEALTH

Fifteenth Annual Report

OF THE

Department of Health

Ontario, Canada

FOR THE YEAR

1939

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



ONTARIO

TORONTO

Printed and Published by T. E. Bowman, Printer to the King's Most Excellent Majesty
1940



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SESSIONAL PAPER No. 14, 1940



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WELLINGTON 1939

Annual Report

Department of Health

FOR THE YEAR

1939

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TO THE HONOURABLE ALBERT MATTHEWS, LL.D.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I herewith beg to present for your consideration the Fifteenth Annual Report of the Department of Health, for the year 1939.

Respectfully submitted,

HAROLD J. KIRBY,

Minister of Health.

TO THE HONOURABLE HAROLD J. KIRBY, K.C.,
Minister of Health.

Sir,—I have the honour to submit for your approval the Fifteenth Annual Report of the Department of Health, made in conformity with and under the provisions of The Public Health Act, for the year 1939.

I have the honour to be, Sir,

Your obedient servant,

B. T. MCGHIE,
Deputy Minister of Health.

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DEPARTMENT OF HEALTH

Minister

HONOURABLE HAROLD J. KIRBY, K.C.

Deputy Minister

B. T. McGHIE, M.D.

Chief Medical Officer of Health

JOHN T. PHAIR, M.B., D.P.H.

Solicitor

K. G. Gray, M.D., K.C......Solicitor to the Department

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A. Hardisty Sellers, B.A., M.D., D.P.H......Director

Division of Epidemiology

H. A. Ansley, M.B., D.P.H......Director

R. P. Hardman, M.D., D.P.H......Epidemiologist

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Division of Tuberculosis Prevention

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K. M. Shorey, M.D......Clinical Specialist

J. S. Hazen, M.D......Clinical Specialist

F. W. Milner, M.D......North-Western Ontario Clinic, Fort William

G. G. Brearley, M.D......Mid-Eastern Ontario Clinic, Belleville

D. McCallum, M.B......Eastern Ontario Clinic, Ottawa

G. M. Lane, M.D......Northern Ontario Clinic, Timmins

H. H. Washburn, M.D......Mid-Northern Ontario Clinic, North Bay

C. A. Wicks, M.D......Inspector of Sanatoria

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Miss N. E. Howey, Reg. N......Supervisor, Public Health Nursing

Miss H. G. Pennock, Reg. N......Supervisor, Public Health Nursing

Miss E. M. Squires, Reg. N......Supervisor, Public Health Nursing

Miss B. E. Johnson, Reg. N......Supervisor, Public Health Nursing

Miss M. V. Lowry, Reg. N., Supervisor of Nursing Eastern Ontario Health Unit, Alexandria

Miss Rose Hally, Reg. N......Public Health Nurse

Miss Ora H. Lefler, Reg. N......Public Health Nurse

Miss M. H. Lunn, Reg. N......Public Health Nurse

Miss K. E. Osborne, Reg. N......Public Health Nurse

Miss E. R. Wheler, Reg. N......Public Health Nurse

Miss Henedine Bechard, Reg. N.....	Public Health Nurse
Miss Ola M. Dancause, Reg. N.....	Public Health Nurse
Miss M. A. Rutherford, Reg. N.....	Public Health Nurse
Miss H. E. Smith, Reg. N.....	Public Health Nurse
Miss L. W. Vrooman, Reg. N.....	Public Health Nurse

Division of Sanitary Engineering

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A. V. Delaporte, B.A.Sc., Chem. E., F.C.I.C.....	Chemist in Charge of Experiental Station
O. V. Ball, B.A.Sc.....	Assistant Sanitary Engineer
G. A. H. Burn, B.A.Sc.....	Assistant Sanitary Engineer
E. W. Johnston, B.A.Sc.....	Assistant Sanitary Engineer
A. T. Byram, B.A.Sc.....	Assistant Sanitary Engineer
G. M. Galimbert, B.A.Sc.....	Assistant Sanitary Engineer
W. R. Edmonds, M.A.Sc.....	Assistant Sanitary Engineer
L. A. Kay, M.A.Sc.....	Assistant Sanitary Engineer
J. G. Duncan, B.A.Sc.....	Assistant Chemist
H. G. Tyler, A.R.San.I., C.S.I. (C).....	Sanitary Investigator

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F. M. R. Bulmer, M.B., B.Sc., Med.....	Special Research
H. E. Rothwell, B.A.Sc., F.C.I.C.....	Chemist
C. M. Jephcott, M.A., Ph.D.....	Assistant Chemist
L. B. Leppard, M.A., Ph.D.....	Physicist
E. O. Braaten, M.A., Ph.D.....	Physicist
D. S. McKee, C.S.I. (C).....	Chief Sanitary Inspector
J. Richardson, Sanitary Inspector.....	North Bay
John Sime, A.R. San. I.....	Fort William
R. B. McCauley, Sanitary Inspector.....	Sault Ste. Marie
Hugh McIntyre, A.R. San. I.....	Kirkland Lake
A. S. O'Hara, M.R. San. I., C.S.I. (C), A.M.I.S.E., enlisted	Kenora
David E. Moore.....	Kenora
Sydney Harris, Sanitary Inspector, C.S.I. (C), enlisted.....	Geraldton
George Hunter Powell, C.S.I. (C)	Geraldton
William L. Smith, enlisted	Bedding Inspector
John Sydney Pye	Bedding Inspector
Hunter Bishop	Technician

Division of Laboratories

Andrew MacNabb, V.S., B.V.Sc.....	Director
Wallace McClure, M.B., D.P.H.....	Bacteriologist
A. R. Bonham, B.A.Sc., F.C.I.C.....	Provincial Analyst
Stuart F. Penny, M.D.....	Pathologist
J. W. Bell, M.B.....	Assistant Bacteriologist
Doris Howell, M.A., M.D.....	Junior Physician
J. E. Fasken, B.A.Sc.....	Assistant Analyst

Branch Laboratories:

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James Miller, M.D., D.Sc., F.R.C.P. (E), F.R.C.P. (Can.), F.R.S.C., Director.....	Kingston
A. E. Allin, M.B., D.P.H., Director.....	Fort William
N. F. W. Graham, B.A., M.D., Director.....	Sault Ste. Marie
A. D. McClure, B.A., Director.....	North Bay
C. B. Waite, M.B., Director.....	Peterborough
F. L. Letts, M.B., D.P.H., Director.....	Ottawa

Division of Dental Services

F. A. Kohli, D.D.S.....Director

Division of Nurse Registration

A. M. Munn, Reg. N.....Director

E. R. Dick, Reg. N.....Inspector of Training Schools for Nurses

Health Education

Mary Power, B.A.....Director

Library

Fredrita Henley Wright.....Librarian

Honourary Consultants

Public Health Administration.....J. G. Fitzgerald, M.D., F.R.S.C.

Pediatrics..... Alan Brown, B.A., M.B.

Dental Services.....Harold Keith Box, D.D.S.

Pathology.....James Miller, M.D., D.Sc., F.R.C.P. (E), F.R.C.P. (Can.), F.R.S.C.

Public Health Nursing.....Miss Elizabeth Smellie, C.B.E., Reg. N.

ANNUAL REPORT

of the

Department of Health

For the Calendar Year Ending December 31st, 1939

Certain aspects of the departmental programme for the year 1939 warrant special reference.

The present plan of local health administration places a large measure of responsibility on the medical officer of health and other personnel employed. If the community health programme is to function effectively, it is necessary that the staff possess knowledge or experience commensurate with the requirements of their office. These qualifications have now been defined and provision made for their being secured.

Justification of the legislation requiring compulsory pasteurization of milk has already been evidenced by the substantial drop in the reported cases of undulant and typhoid fever and the pronounced decrease in deaths among infants from diarrhoea and enteritis.

Progress has been made in the attempt to ensure more adequate treatment for those suffering from venereal disease. The further decline in the death rate from tuberculosis is tangible evidence of the value of the plan of tuberculosis control made effective two years ago.

The fact that deaths among pregnant women were markedly lower than in any previous year is a cause for satisfaction. It is hoped that it will be possible to maintain this more acceptable level of deaths from this cause until such time as further reductions are possible.

At the outbreak of the war, all of the resources of the department were placed at the disposal of the Federal Government. The services of the department laboratories, of the consultant staff in epidemiology, tuberculosis, venereal disease, sanitary engineering, were made available to the Department of National Defence. Those biologicals manufactured by the department are supplied gratuitously for the immunization of enlisted men from Ontario.

The report of the activities of the various divisions of the department follow in some detail.

PUBLIC HEALTH ADMINISTRATION

JOHN T. PHAIR, M.B., D.P.H., *Chief Medical Officer of Health.*

In 1883 the Provincial Legislature of the day vested in the hands of the municipal authorities, through local boards of health, the responsibility for carrying out such public health measures as were thought to be in the best interests of the community as a whole. The obligations so placed, dealt largely with the control of contagion and the prevention of nuisances. Even today the public interest in health matters is in the main limited to the control of communicable diseases and environmental sanitation. While procedure and practice have materially changed, the machinery for implementing the control measures is identical with that in effect two generations ago.

This type of local administrative set-up, which provided for an appropriate body (the local board of health) responsible to the municipal council; a medical officer of health whose only necessary qualification was that he be a physician in good standing, and one or more sanitary officers whose qualifications were not even implied, has obvious drawbacks. The disadvantages are particularly manifest in suburban and rural communities. The implication that the natural advantages of rural existence offset the disadvantages of living in a congested urban community, is not in keeping with the known facts in the matter of controllable illness or physical defect. It would seem reasonable, therefore, that a community health service based on such an implication should be revised in keeping with the established facts. The ultra-conservative attitude of the public, coupled with an insistent demand for the retention of local autonomy, however, makes it difficult to create any widespread interest in a modification of the present set-up.

In 901 municipalities approximately 700 health officers function, 687 of whom are employed part-time. The remuneration paid ranges from \$15.00 to \$7,000.00 per annum. In the majority of these communities the medical officer of health takes the responsibilities of his office seriously. In all of the organized municipalities the health officer is aided in the conduct of his duties by one or more sanitary officers. In the majority of instances the sanitary officer devotes only a portion of his time to this work. In 140 of the urban centres and 4 townships, public health nursing is supplied under the auspices of the local board of health. In 154 communities school nursing is carried on under the aegis of the local school board or board of education. In only 14 municipalities is the local health effort directed by a full-time medical health officer.

Changes During the Year.

In 39 municipalities the position of health officer changed hands during the year 1939. In 13 of these, presided over by 11 medical officers, the change was due to the death of the former incumbent of the office: Doctors F. Munroe, O. E. Carr, A. D. Graham, H. J. Walker, C. H. Carruthers, H. E. Johnson, D. C. McKenzie, H. H. Casselman, G. C. Ferrier, H. E. Ferguson and H. Hay.

Temporary retirement from the office in 15 additional municipalities followed enlistment in Overseas Forces by the following 11 medical officers: Doctors W. R. Crowe, W. H. Pedley, G. L. Bell, R. E. Smart, J. B. Willoughby, G. M. Fraser, G. Allison, G. E. McCartney, K. B. Waller, L. M. Stuart and C. V. Mulligan.

In the remaining 11 municipalities the medical officer retired from office.

An effort was made during the year to aid the newly appointed health officers by encouraging them to take advantage of the consultant service available at central office, and by a discussion of their problems at a special session of the Annual Conference of the Ontario Health Officers' Association.

Pursuant to the authority granted by Section 37 of The Public Health Act, regulations setting out the qualifications of all public health personnel were made effective in the latter part of the year. These requirements are such that a reasonable measure of experience or special training in public health administration is assured all communities irrespective of their size or population.

The School of Hygiene of the University of Toronto has by arrangement with the department set up short courses of instruction for all those required by the regulations to secure such training. The first of these will be held early in the new year.

Provision is made each year whereby the medical officer presents in appropriate fashion an annual summary of the community health programme. Suitable forms for this purpose are supplied to all health officers. The purpose of this report is twofold—first, to acquaint the local authorities, and through them, the public at large, as to the health problems presenting and the methods adopted in their attempted solution; and, secondly, to inform the provincial department of the scope of the community programme. Having in mind these objectives, significant changes were made in this year's annual report. It is further hoped that these changes will result in a better appreciation on the part of the local health staff in certain communities of the implications of their office.

As previously implied, public concern still centres largely around the prevention of communicable illness. One of the primary requisites to such prevention is prompt reporting of all cases of such diseases. A serious effort has been made this year to secure more adequate reporting. The Ontario Medical Association has lent its support to this movement.

The department continues to make available certain consultative services which are offered to all municipalities and on occasion imposed on some. These services include:—advice as to local administration; direction in methods and procedures; direct aid in the control of local outbreaks of disease; and in the correction of sanitary problems. Though many field trips are made during the year by the department staff, the contact with the local worker is not as intimate as is desirable under the present type of community health set-up.

There is every evidence of local appreciation of the department's effort to more adequately serve the extreme north-western section of the Province. Dr. Mosley reports briefly as follows:

The territory covered is comprised of the Districts of Thunder Bay, Kenora and Rainy River.

The time of the staff is devoted largely to sanitary investigations or visits to centres where there is an increased incidence of communicable disease. This latter part of the work involved investigations of an outbreak of dysentery at Red Lake, in June; chickenpox in Mabella, in February and March; whooping cough in Cameron Falls, in February and March. This community is relatively isolated and an opportunity was presented for observation on the effectiveness of whooping cough vaccine. A report was submitted to the department on these observations. Seven visits were made to this community.

Four cases of typhoid fever apparently had their source from a carrier in Kenora. With the Medical Officer of Health these cases were investigated. Appropriate measures were taken to ensure that no further cases developed from this source. Three cases of typhoid fever among the residents at Ombabika were reported in December. An immediate investigation was made and studies are still in progress.

Sporadic cases of poliomyelitis, totalling eleven in number, have been reported from September to December. These cases occurred in scattered areas of the Districts of Kenora and Rainy River, chiefly around Dryden, Sioux Lookout and adjacent rural areas. Visits were made to establish diagnosis in those cases resident in unorganized territory and supervision of isolation and quarantine was maintained.

In addition to the above cases of communicable illness, individual cases from widely scattered areas were investigated when reported. Some twenty visits were made for this purpose. All reported suspect cases not seen by a physician were investigated in order to establish a diagnosis and effect the necessary measures under the regulations.

Sanitation.

Whenever requested, or when it seemed to be indicated, this office collaborated with the Medical Officers of Health and the district Sanitary Inspectors in matters pertaining to sanitation. Problems relating to water supplies, sewage disposal, restaurant sanitation, refreshment booths, and so forth, were discussed. Copies of all reports on milk and water samples submitted to the Provincial Laboratory were studied and action taken where required.

Other activities of a somewhat diverse nature were carried on during the year, including investigations made and reports submitted to the Division of Industrial Hygiene in respect to reported illnesses associated with occupation; and assistance to the Chest Clinic at Sioux Lookout and Kenora.

The candidates for Veteran Guards under the Provincial Police in this area were examined in company with a physician from the Division of Tuberculosis Prevention. Some one hundred and twenty-three such candidates and seven special constables were physically examined.

Discussions of problems relating to public health were held with the Medical Officers of Health of the organized municipalities. Many of the Medical Officers of Health were contacted personally during the year.

I would like to express my appreciation for the excellent co-operation received from the Medical Officers of Health, the medical profession and those associated with the various semi-official and voluntary agencies interested in public health work. The assistance and co-operation of all the officers of the department is also much appreciated.

EASTERN ONTARIO HEALTH UNIT

Comprising the Counties of Stormont, Glengarry, Prescott and Russell.

Medical Director: MURRAY G. THOMSON, M.D., D.P.H.

Supervisor of Nursing: MURIEL V. LOWRY, Reg. N.

Sanitary Inspector: G. A. H. BURN, B.A.Sc.

The Eastern Ontario Health Unit in 1939 followed closely the programme of the preceding years. The control of tuberculosis was given first place on this programme and the number of admissions to sanatoria from all counties during the past year has been most satisfactory. X-ray examinations increased from 1,410 in 1938 to 1,760 in 1939. 152 new cases were found. The number of active cases at home was reduced from 77 to 55.

From preliminary figures, it would appear that the infant mortality rate for 1939 will be a record low and about 30 per cent. less than the 1931-1934 average.

An effort was made to reach the schools more frequently and 401, or 68 per cent. of the class rooms, received visits of inspection from the nursing staff. Over 10,000 children were given special physical inspection. It is difficult to evaluate the results of school work, but a considerable decrease was noted in the percentage of children who had to be referred to a doctor for correction of defects.

There were no serious epidemics of communicable disease. During November and December, there was a large number of cases of chickenpox and there was also a considerable amount of influenza and pneumonia during the winter months. Only five cases of diphtheria were reported with no deaths. The percentage of school-age children immunized has been maintained and the percentage of preschool children protected increased.

Gratifying results have been obtained by our sanitary engineer in his effort to improve the quality of milk supplied to consumers. The logarithmic average of the plate counts for pasteurized milk has been reduced from 34,000 in 1937 and 13,400 in 1938 to 5,200 for 1939.

In all tables and graphs which follow in this report, figures for the County of Stormont do not include the Town of Cornwall.

Communicable Diseases.

Table I lists the number of cases and deaths reported to the Health Unit during the year. The deaths from whooping cough and chickenpox were confined to children under 2 months of age.

TABLE I
COMMUNICABLE DISEASES
1939

	No. of Cases	No. of Deaths
Chickenpox.....	68	1
Diphtheria.....	5	0
Gonorrhea.....	14	0
Measles.....	440	0
Mumps.....	2	0
Paratyphoid Fever.....	6	1
Poliomyelitis.....	3	0
Scarlet Fever.....	64	0
Syphilis.....	7	0
Typhoid Fever.....	3	1
Whooping Cough.....	20	2

Immunization.

As in past years, members of the nursing staff have assisted the local medical officers of health in carrying out diphtheria toxoid and smallpox vaccination campaigns. Toxoid clinics were held in 12 municipalities and vaccination clinics in 7 municipalities. A scarlet fever immunization clinic was held at Finch Village. That the diphtheria toxoid clinics have been well worth-while is illustrated in the vital statistics reports which show that, prior to the administration of toxoid, there were from 10 to 25 deaths from diphtheria each year. There has not been a single death from diphtheria in the Unit area for over two years.

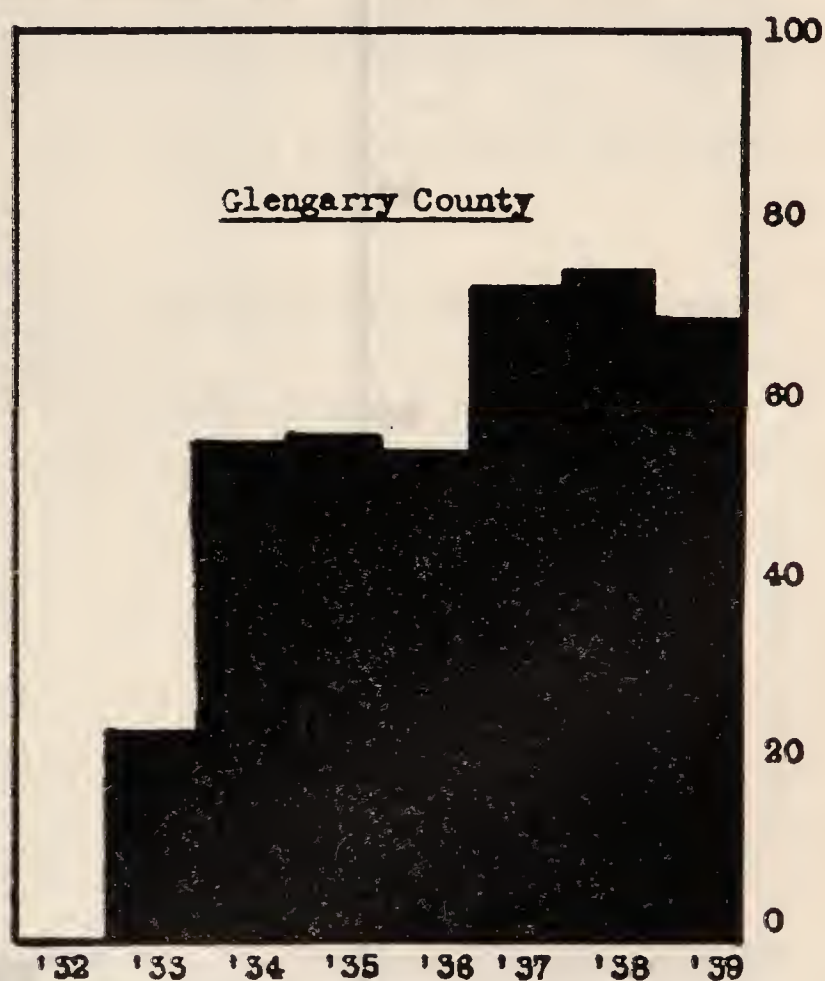
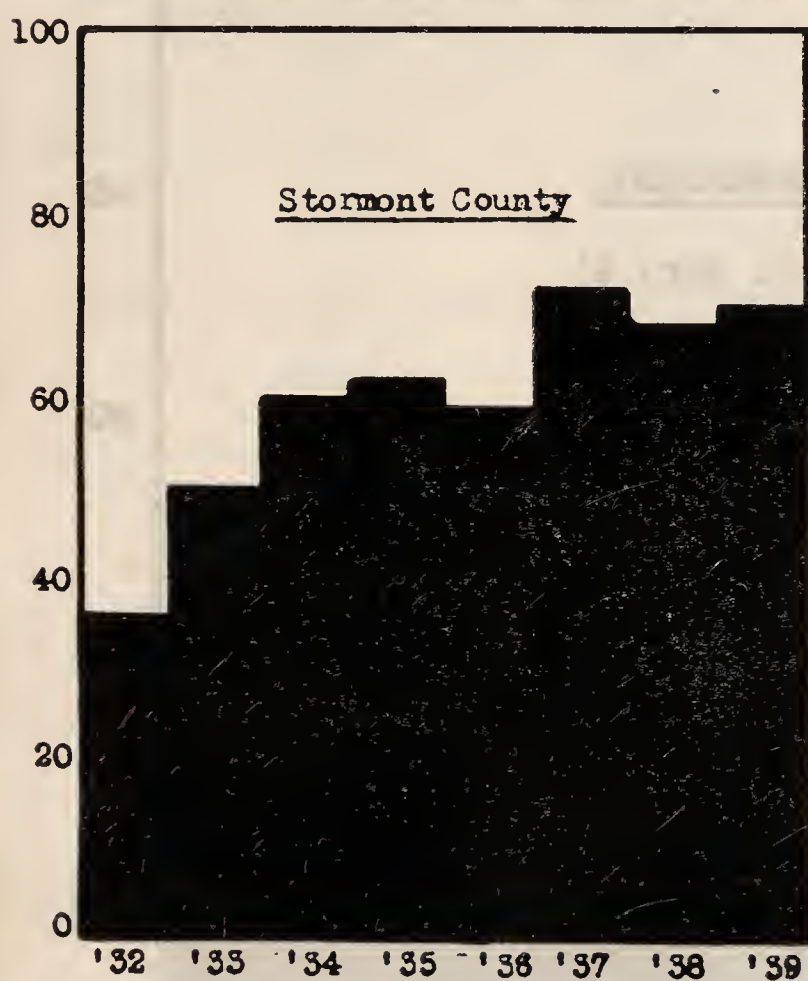
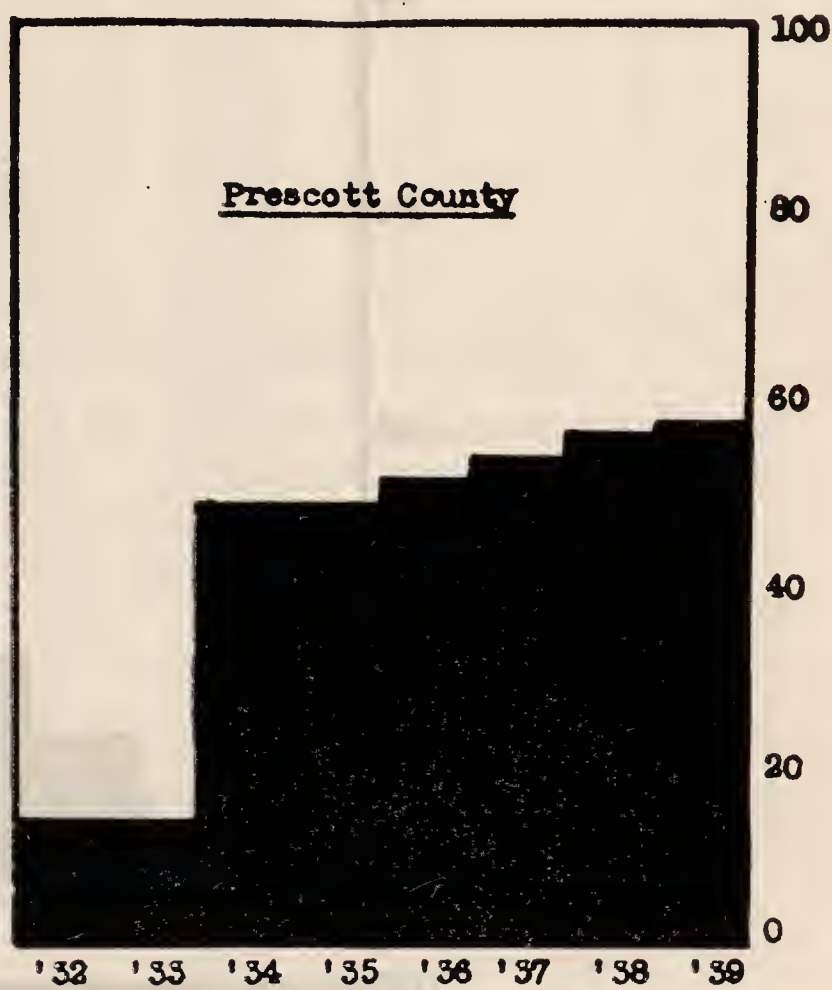
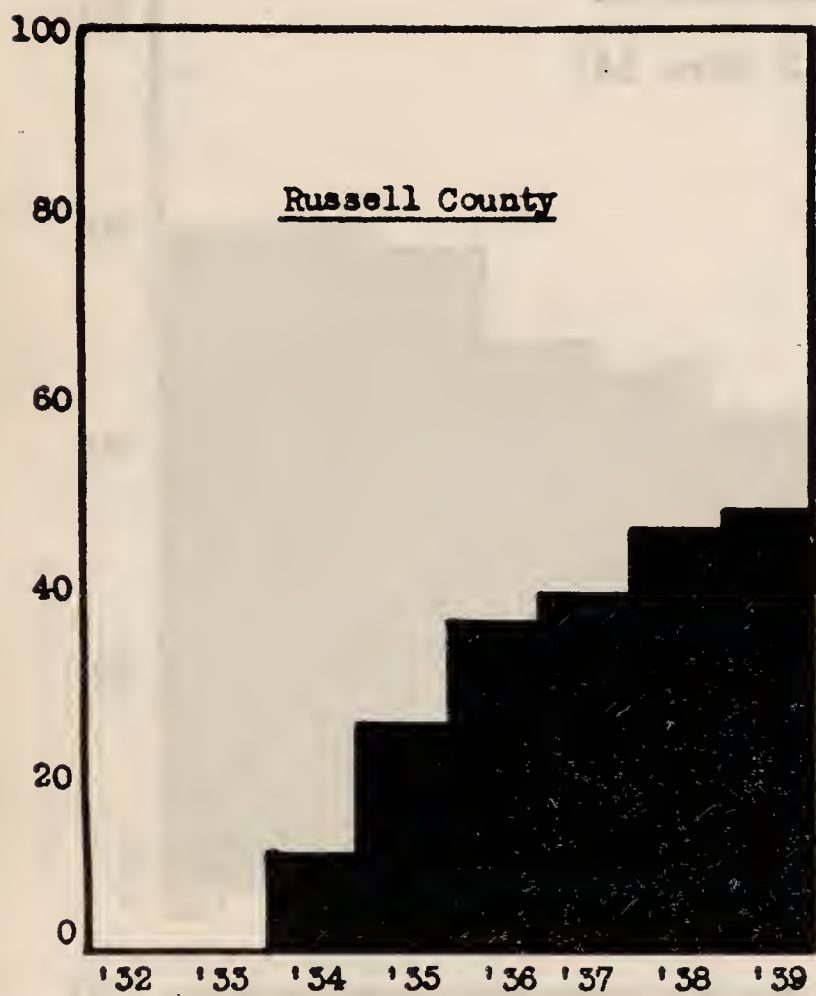
Table II gives, by county, the number of children immunized at clinics during 1939. These figures do not include any immunization work done by physicians in private practice. From observations made by the nursing staff, a greater number of parents are taking their children to their family physicians to receive immunization treatments.

TABLE II
IMMUNIZATION AT CLINICS BY COUNTIES DURING 1939

COUNTY	DIPHTHERIA		SMALLPOX	
	5 years and over	Under 5 years	5 years and over	Under 5 years
Glengarry.....	0	0	0	0
Prescott.....	258	243	428	82
Russell.....	248	99	81	58
Stormont.....	414	315	17	11
HEALTH UNIT.....	920	657	526	151

Table III shows by counties the percentage of school-age children (5-14 years) and preschool children (1-4 years) protected against diphtheria and smallpox as of December 31st, 1939.

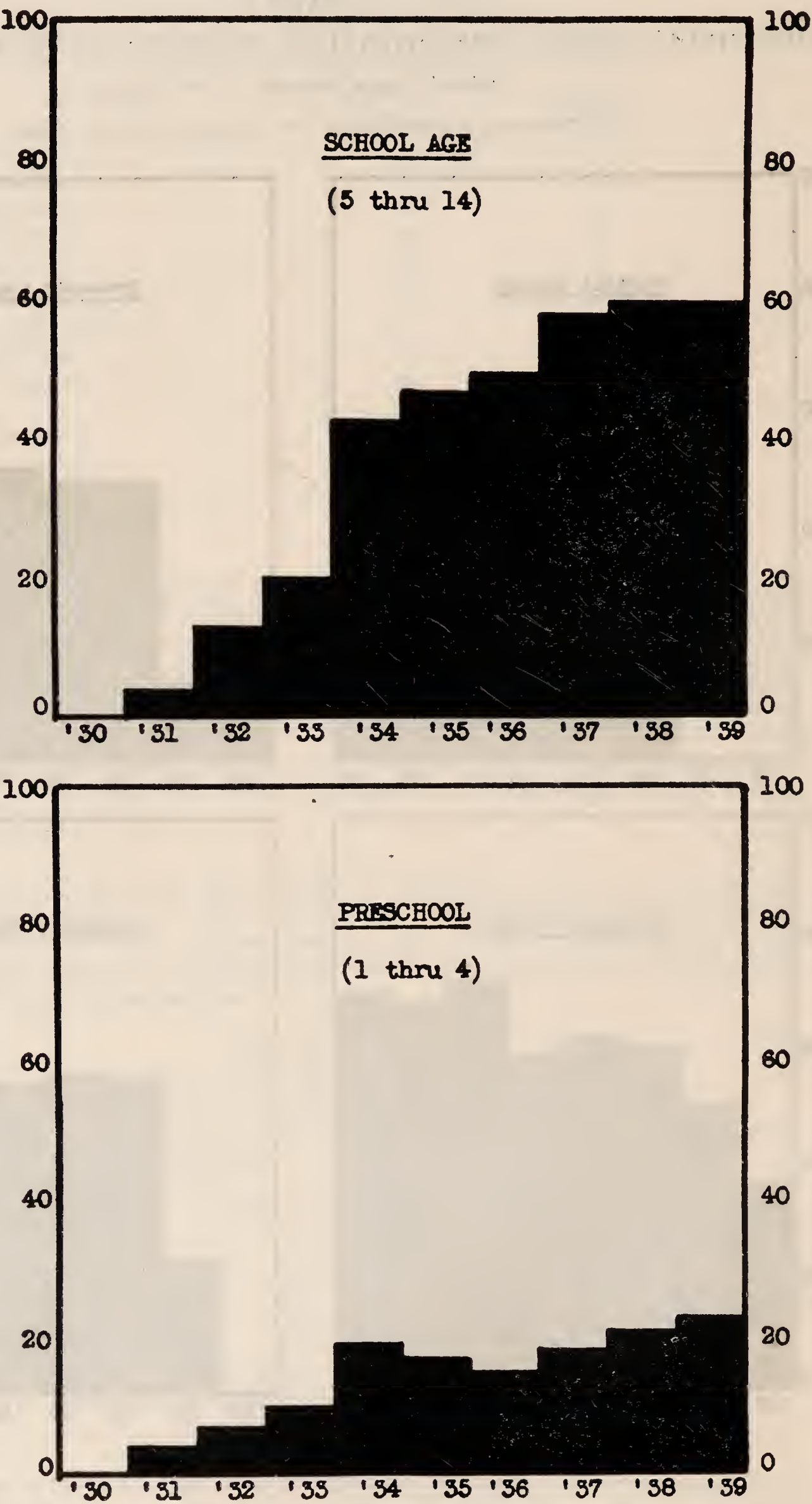
GRAPH I.
DIPHTHERIA TOXOID IMMUNIZATION—EASTERN ONTARIO HEALTH UNIT
School Age Children (5-14 Years).
Percentage Immunized by County and by Year.



GRAPH II.

DIPHThERIA TOXOID IMMUNIZATION—EASTERN ONTARIO HEALTH UNIT

Percentage Immunized



DEATHS FROM
DIPHThERIA
(All Ages)

-

161132214100

TABLE III
PERCENTAGE OF CHILDREN IMMUNIZED AGAINST DIPHTHERIA
AND SMALLPOX
DECEMBER 31st, 1939

COUNTY	DIPHTHERIA		SMALLPOX	
	% School (5-14)	% Preschool (1-4)	% School (5-14)	% Preschool (1-4)
Glengarry.....	69	18	50	10
Prescott.....	57	27	57	9
Russell.....	48	17	31	12
Stormont.....	70	28	52	5
HEALTH UNIT.....	60	23	49	9

Twenty thousand (20,000) children in the four counties comprising the Health Unit have been protected by toxoid from diphtheria at clinics.

Only those children who have received the full three doses of toxoid are considered as immunized against diphtheria. With the exception of three municipalities in which vaccination is a requirement for school attendance, no attempt has been made to estimate the amount of immunization work done by private physicians. Were this work included, the percentage rates would undoubtedly be several points higher. Another factor which has prevented the percentage immunized being raised is that there is still one municipality which has not yet had a diphtheria toxoid campaign; a second not since 1933; and a third not since 1934. In almost all the other 25 municipalities, it is now a policy to hold a toxoid campaign at least every three years. In several municipalities, over 80 per cent. of the school-age children are protected.

Control of Tuberculosis.

During the year, 42 deaths were reported, a rate of 47 per 100,000 population. Of these 19 (45 per cent.) were in the age group 15-25 years. There is considerable variation in the mortality rates from year to year, but it will be noted from Table IV and Graph III that the trend of these rates is definitely downward.

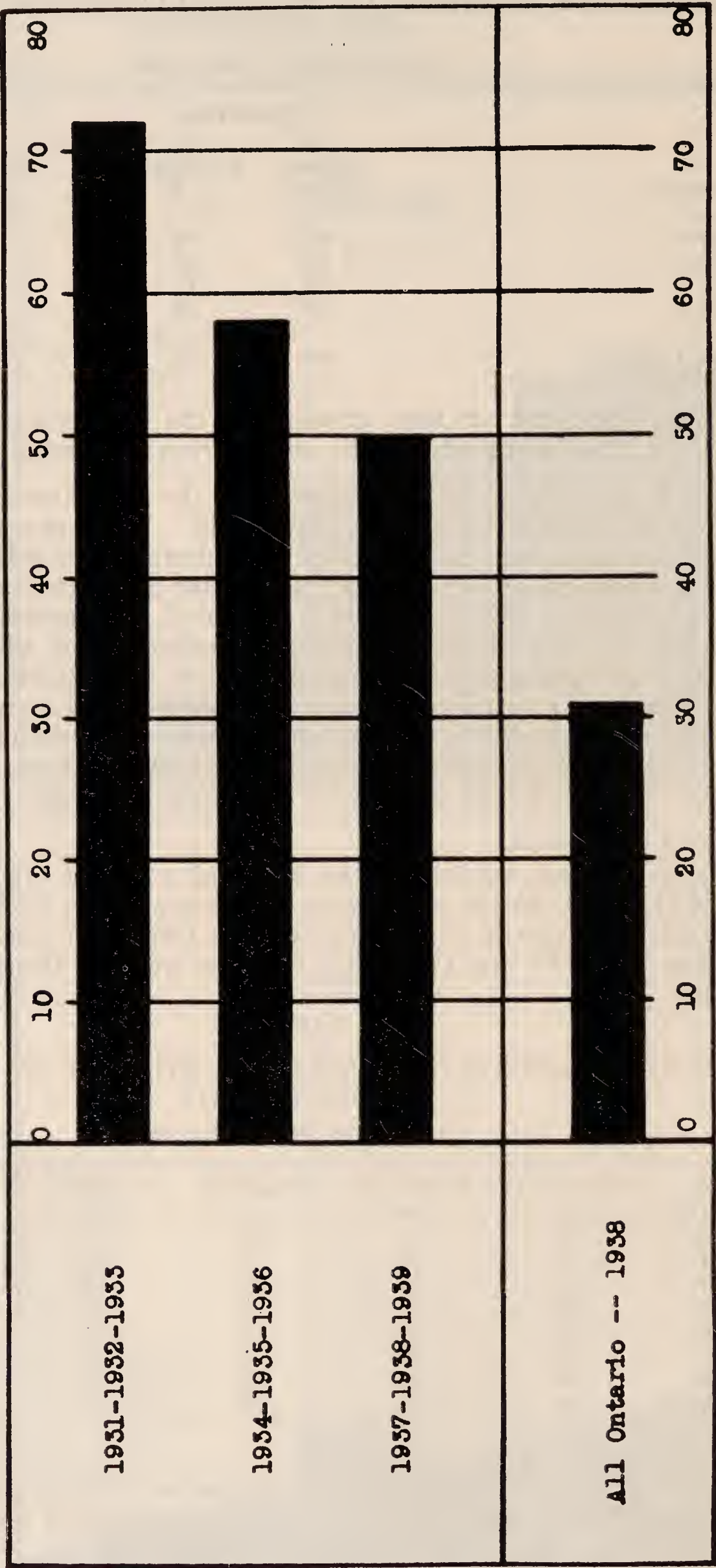
TABLE IV
TUBERCULOSIS MORTALITY RATES—COUNTIES OF EASTERN ONTARIO
HEALTH UNIT
Deaths per 100,000 Population

YEAR	GLENGARRY	STORMONT	PRESCOTT	RUSSELL	ALL HEALTH UNIT
1931	102	79	61	65	76
1932	90	37	80	91	74
1933	84	50	51	89	66
1934	52	37	47	41	45
1935	102	60	54	57	67
1936	66	27	85	52	60
1937	55	67	35	36	49
1938	94	45	67	45	59
1939	60	54	72	15	47

Sanatorium Care.

The St. Lawrence Sanatorium was erected in 1937 by the United Counties of Stormont, Dundas and Glengarry, for the treatment of the residents of these Counties. It has been filled to capacity throughout the year. During 1939, 28 residents of the Health Unit area were discharged, and 50 new patients were admitted for treatment.

GRAPH III.
TUBERCULOSIS MORTALITY RATES—EASTERN ONTARIO HEALTH UNIT
Deaths Per 100,000 Population



The number of patients from Prescott and Russell admitted to sanatoria has continued to increase. At the end of 1936, only 17 patients were receiving such care; on December 31st, 1939, 51 patients were under treatment in sanatoria. During the single year 1939, 25 patients from these Counties journeyed to hospitals situated 300 miles or more from their homes. The improvement has been influenced largely by the recent legislation whereby the cost of maintenance of indigent patients is assumed by the Province. An equally important factor has been the changed attitude of the people of Prescott and Russell with respect to the value of sanatorium treatment for tuberculosis. For this change in public opinion a large share of the credit is due to the untiring efforts of the nursing staff of the Health Unit.

Chest Clinics.

In Prescott and Russell Counties, Chest Clinics are conducted by Dr. D. McCallum, of the Division of Tuberculosis Prevention. Dr. G. W. Cragg, Medical Superintendent of the St. Lawrence Sanatorium, conducts those in Glengarry and Stormont Counties. In Prescott and Russell, clinics were held at: Casselman (4 days), Plantagenet (8 days), Hawkesbury (9½ days), Rockland (6 days), and Bourget (2 days). In Glengarry and Stormont, clinics were conducted at: Alexandria (7 days), Lancaster (2 days), Finch (2 days), Avonmore (2 days), Maxville (2 days), and Cornwall (10 days). In addition, examinations were made on appointment at both the St. Lawrence Sanatorium and at the headquarters of the Travelling Chest Clinics at Ottawa. In all, 973 patients from Prescott and Russell, and 787 from Stormont and Glengarry were examined. As in past years, the nursing staff arranged all appointments for examinations; were responsible for nursing service at all clinics; and carried out the follow-up programme in the homes.

Table V shows the number of known contacts and the number who have received examinations, as recommended. The percentage of examinations continues to rise slowly. Undoubtedly they would be considerably higher if facilities for examination could be increased. However, each chest clinic is filled to capacity. In giving appointments it is necessary to make careful selection.

TABLE V
EXAMINATION OF CONTACTS OF CASES OF TUBERCULOSIS

NURSING DISTRICT	TOTAL KNOWN CONTACTS		CONTACTS EXAMINED	
	25 years and under	26 years and over	25 years and under	26 years and over
Alexandria.....	165	122	107	49
Lancaster.....	163	135	64	26
Hawkesbury.....	267	143	149	58
Plantagenet.....	231	118	119	61
Casselman.....	120	36	54	13
Rockland.....	146	93	84	39
Cornwall.....	243	112	139	54
Finch.....	84	33	49	14
Totals, Dec., 1939.....	1,419	792	765	314
Per cent. with examinations up to date, Dec., 1939.....			54%	40%
Per cent. with examinations up to date, Dec., 1938.....			49%	39%

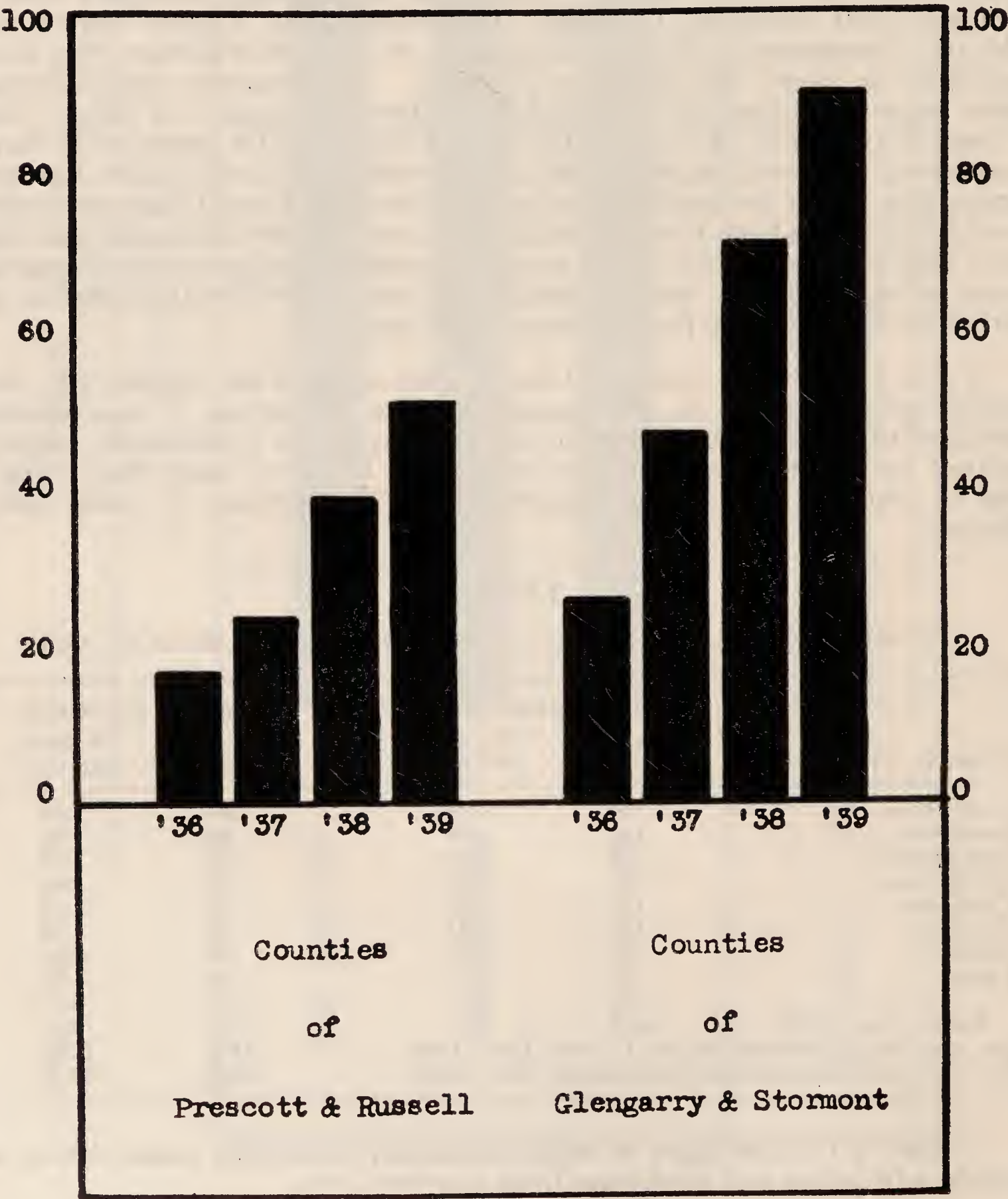
Table VI is a summary of such information as to new cases, deaths, removals, admissions and discharges from sanatoria, etc.

Table VII records by counties the number of cases at home by stage of disease and by activity, and the number of cases in sanatoria for the years 1936, 1938 and 1939.

Table VIII is a summary of all cases of tuberculosis residing at home by stage of disease and activity at the end of the years 1936, 1938 and 1939.

Graph IV illustrates the number of cases in sanatoria receiving treatment at the end of the years 1936, 1937, 1938 and 1939 for (a) Prescott and Russell; and (b) for Stormont and Glengarry.

GRAPH IV.
NUMBER OF PATIENTS IN SANATORIA RECEIVING TREATMENT
At End of Each Year



From these tables it will be noted that:

- (1) New cases found this year totalled 152, as compared with 184 in 1938; chest examinations increased from 1,401 in 1938 to 1,760 in 1939.
- (2) 102 patients were admitted to sanatoria. Of these, 62 were from Glengarry and Stormont; and 40 from Prescott and Russell. Of the latter group, 25 went to sanatoria in Western Ontario.
- (3) Active cases of tuberculosis under treatment at home decreased from 77 to 55. The decrease was most apparent in the "Minimal Active" group (Table VIII). There are, however, at least 30 active cases who refuse to avail themselves of sanatorium facilities for treatment. Most of these are in the "moderately advanced" or "advanced" stage and several are known to have positive sputum. The nursing staff have made a great many visits to these homes in an endeavour to effect a change in attitude and to minimize the possibility of the disease spreading to other members of the family.
- (4) Of the 55 active cases still residing at home, 32 are from Stormont and Glengarry Counties; and 23 from Prescott and Russell Counties. (Table VII).

TABLE VI
SUMMARY OF TUBERCULOSIS CASES
DECEMBER 31st, 1939

	GLEN- GARRY	STORMONT	PRESCOTT	RUSSELL	TOTAL for 1939	TOTAL for 1938
CASES AT HOME, Jan. 1, 1939..	116	44	116	59	335	282
New cases found during year....	40	63*	29	20	152	184
Returned home from sanatoria	16	11	10	8	45	36
Moved into district.....	3	2	2	3	10	9
Died at home of tuberculosis....	9	2	6	2	19	36
Died—other cause.....	0	0	0	1	1	0
Moved from district.....	4	8	12	1	25	22
Diagnosis reversed.....	10	6	5	3	24	18
Admitted to sanatoria.....	32	30	23	17	102	100
CASES AT HOME, Dec. 31, 1939..	120	74	111	66	371	335
IN SANATORIA, Jan. 1, 1939.....	39	32	30	9	110	71
Admitted to sanatoria this year	32	30	23	17	102	100
New case to district by change of address of family.....	0	1	0	0	1	4
Discharged from sanatoria.....	16	11	10	8	45	36
Died in sanatoria.....	3	10	9	1	23	24
Discharged — family moved from Health Unit area.....	0	3	0	0	3	1
Discharged — family moved to another county in Unit.....	0	1	0	0	1	4
CASES IN SANATORIA, Dec. 31, 1939.....	52	38	34	17	141	110
TOTAL CASES—at home and in sanatoria.....	172	112	145	83	512	445

*Previous to 1937 (the opening of the St. Lawrence Sanatorium), only a small percentage of contacts or suspects resident in Stormont County had an opportunity for a free examination.

TABLE VII
KNOWN TUBERCULOSIS CASES—EASTERN ONTARIO HEALTH UNIT—DECEMBER 31st, 1936, 1938 and 1939

COUNTY	YEAR	GRAND TOTAL	STAGE OF DISEASE (Cases at Home)					ACTIVITY (Cases at Home)				IN SANATORIA	
			Min.	Mod. Adv.	Adv.	Child- hood	Other	Undeter- mined	Act.	Quiesc.	Arr.		Undeter- mined
Glengarry.....	1936	109	37	20	15	3	5	10	20	21	41	8	19
	1938	155	54	30	12	9	5	6	19	30	57	10	39
	1939	172	42	44	13	11	6	4	13	29	61	17	52
Stormont.....	1936	29	7	5	3	4	0	3	7	6	5	4	7
	1938	76	27	7	1	7	0	2	12	11	20	1	32
	1939	112	32	26	4	6	6	0	19	19	33	3	38
Prescott.....	1936	116	51	28	11	1	6	9	37	30	27	12	10
	1938	146	57	34	9	4	6	6	29	41	36	10	30
	1939	145	52	37	9	5	7	1	15	43	45	8	34
Russell.....	1936	49	21	10	4	2	3	2	19	8	11	4	7
	1938	68	32	14	6	3	2	2	17	18	17	7	9
	1939	83	37	17	5	5	1	1	8	27	27	4	17
TOTAL.....	1936	303	116	63	33	10	14	24	83	65	84	28	43
	1938	445	170	85	28	23	13	16	77	100	130	28	110
	1939	512	163	124	31	27	20	6	55	118	166	32	141

TABLE VIII
SUMMARY OF TUBERCULOSIS CASES RESIDING AT HOME
By Stage of Disease and Activity
1936—1938—1939

STAGE OF DISEASE	YEAR	ACTIVITY				TOTAL
		Active	Quiescent	Arrested	Undeter- mined	
Minimal.....	1936	30	38	47	1	116
	1938	26	56	85	3	170
	1939	5	56	93	9	163
Moderately Advanced	1936	25	18	20	0	63
	1938	20	33	26	6	85
	1939	25	47	41	11	124
Far Advanced.....	1936	22	8	3	0	33
	1938	20	4	4	0	28
	1939	18	5	6	2	31
Childhood.....	1936	0	1	8	1	10
	1938	4	4	12	3	23
	1939	3	7	16	1	27
Other Forms.....	1936	3	0	5	6	14
	1938	2	3	3	5	13
	1939	3	3	10	4	20
Undetermined.....	1936	3	0	1	20	24
	1938	5	0	0	11	16
	1939	1	0	0	5	6
TOTAL.....	1936	83	65	84	28	260
	1938	77	100	130	28	335
	1939	55	118	166	32	371

Tuberculosis in Prescott and Russell.

In our annual report each year, we have recommended that sanatorium facilities be provided by the Counties' Council for their residents. During the past year, the Council considered a proposal that they contribute to the construction of an addition to the Royal Ottawa Sanatorium. Negotiations were, however, discontinued with the outbreak of the war.

From Table VII, it will be noted that there has been a distinct decrease in the number of "active" cases at home. In 1936, there were 55; in 1938, 46; at the present time, only 23. Of this group, all are well known to the Unit staff. Four were diagnosed for the first time this year; remaining 19 are chronics who have been on our lists from 1 to 5 years.

Of the 49 new cases found in Prescott and Russell this year, 30 were active. Of these, 4 are under treatment at home. The remaining 26 have either been admitted to sanatorium, or have shown improvement upon re-examination, or have died.

Infant and Child Hygiene.

Although reports for 1939 are not yet complete, preliminary returns indicate that the infant mortality rate for the Health Unit area will be about 68 per 1,000 live births, and will be the lowest rate ever recorded for this district.

In the five-year period in which the Unit has been operating, the average infant mortality rate has been 75. This compares with an average rate of 98.3 in the period 1931-1934.

TABLE IX
INFANT MORTALITY RATES—EASTERN ONTARIO HEALTH UNIT
Deaths of Children under 1 year of age per 1,000 Live Births

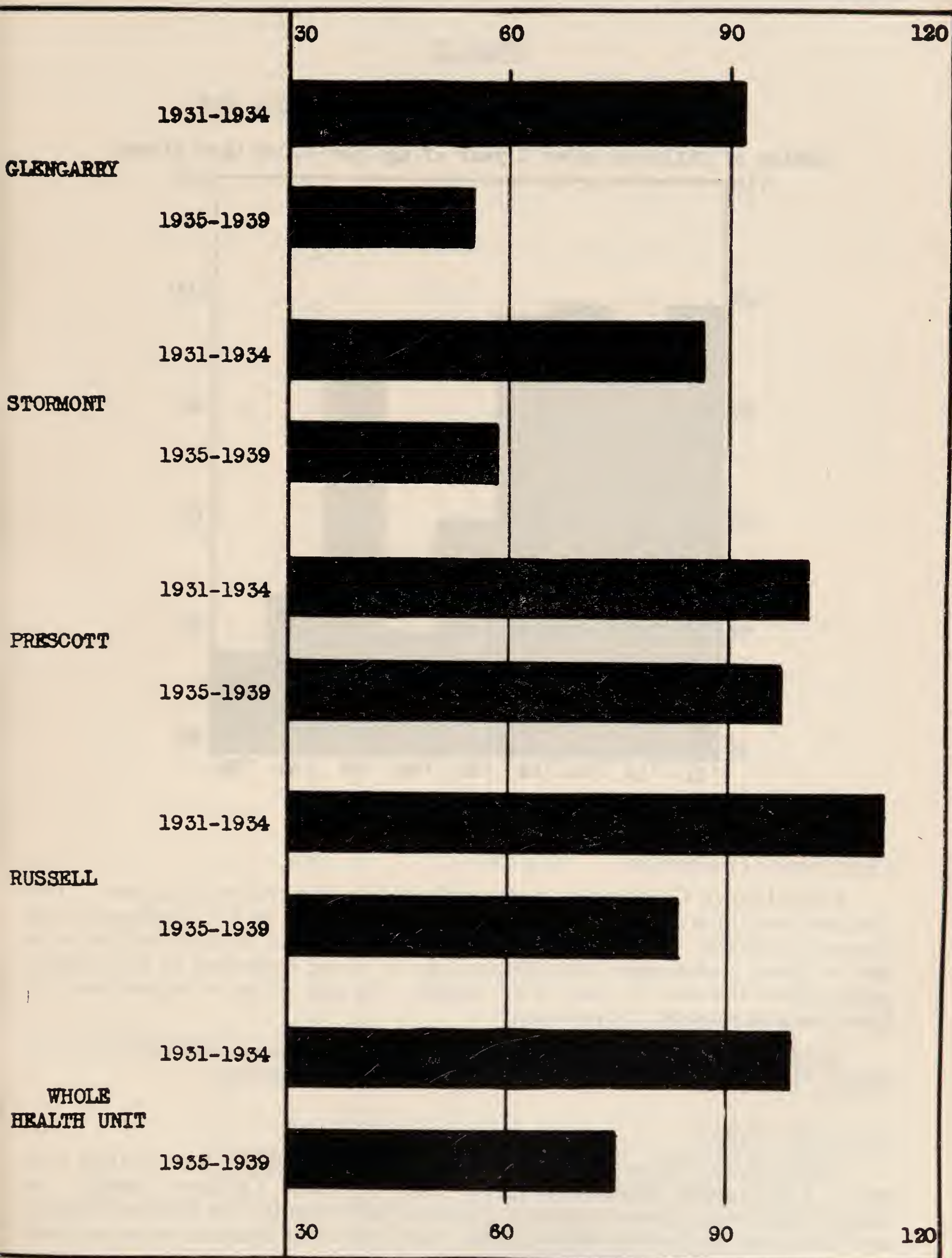
YEAR	GLENGARRY	PRESCOTT	RUSSELL	STORMONT	ALL UNIT
1931	109	81	110	107	99
1932	94	97	110	83	97
1933	85	110	119	72	99
1934	73	119	107	79	98
1935	46	97	79	78	80
1936	40	87	85	50	70
1937	100	120	90	56	94
1938	45	100	80	53	73
1939	45	80	80	60	68

In Table IX, the infant mortality rates for the Counties and for the Unit as a whole are given for each year, 1931-1939. Figures to the end of the year 1938 in this table and the charts following are those of the Registrar-General. The rates for 1939 are based upon deaths reported to the end of November, and estimated deaths for the remainder of the year.

Graph V illustrates that in Glengarry, Stormont and Russell Counties, definite progress has been made in reducing the number of infant deaths. While there has been some improvement, the results of our efforts in Prescott County are not particularly gratifying. Each year there seems to be an unnecessarily large number of deaths attributed to premature birth and to respiratory diseases.

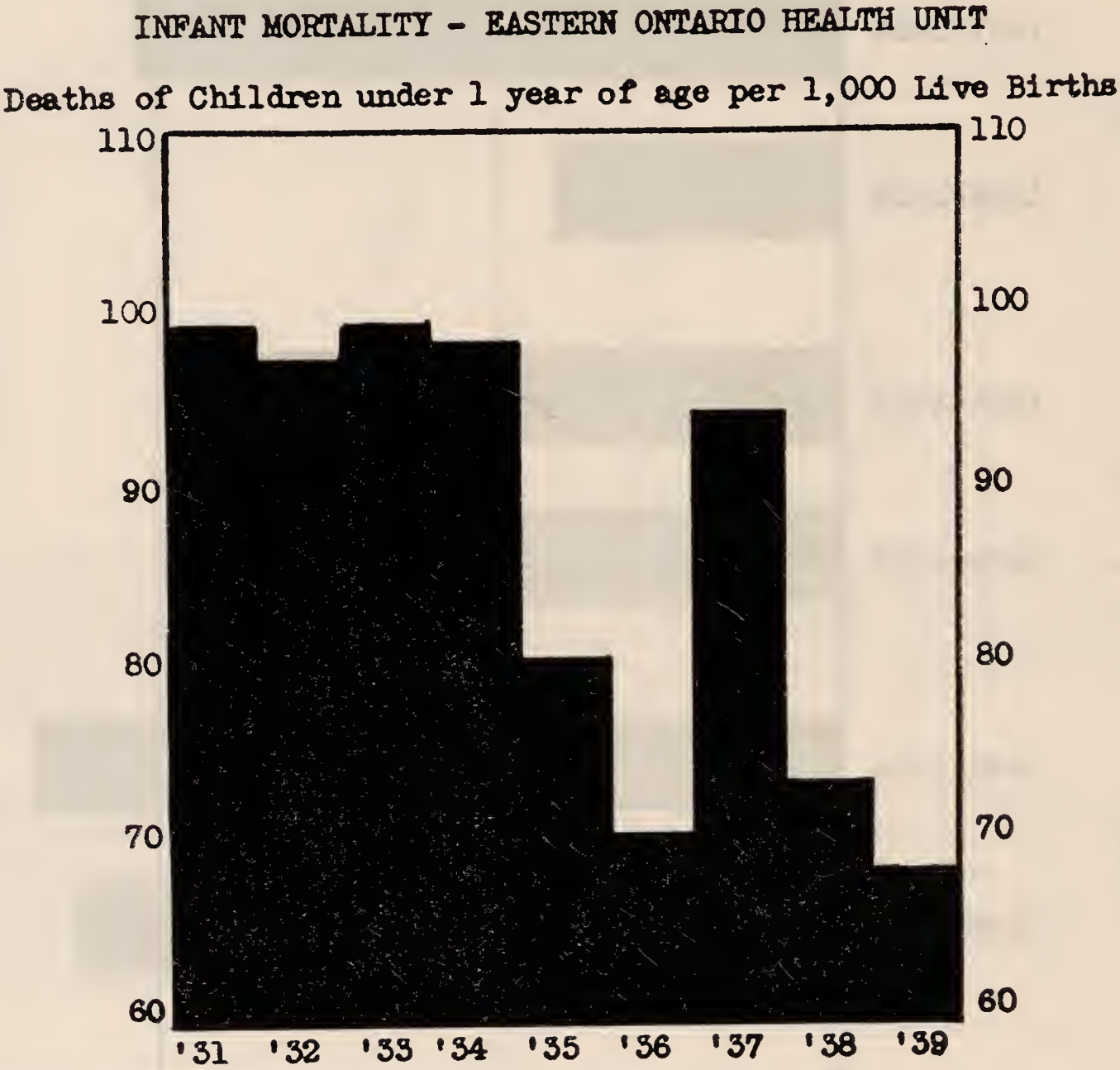
GRAPH V.
EFFECT OF CHILD WELFARE WORK OF HEALTH UNIT ON INFANT
MORTALITY RATES

Average Number of Deaths of Infants under 1 Year of Age per 1,000 Births



Graph VI gives the infant mortality rates by year for the period 1931-1939. It will be noted in this Graph that, with the exception of the year 1937, when there was a severe epidemic of influenza, the rates for the period 1935-1939 are considerably lower than those for the period 1931-1934.

Graph VI



Child Health Conferences.

Child Health Conferences were conducted in five centres this year. The Embrun and Lancaster conferences were discontinued and a conference was opened at Russell. 286 individual babies (15 per cent. of the total births) were seen at these conferences; 128 (45 per cent. of those registered at the clinics) came before the end of their third month. In this group of supervised infants, only one death was reported.

Table X gives in detail the attendance at the various conferences in the Health Unit during 1939, with figures for 1938 for comparison.

Pre-School Clinics.

Clinics for children about to enter school were held in four centres this year: Plantagenet, Alfred, Wendover and Embrun. Children brought to these Clinics were given a complete physical inspection by the Medical Director of the Unit; and, where defects were found, the child's parents were advised to consult their family physician.

TABLE X
ANALYSIS OF CASES ATTENDING CHILD HEALTH CONFERENCES DURING 1939

VILLAGE OR TOWN	Clinics Held	AGE ON FIRST VISIT IN 1939				Individ- uals	TOTAL VISITS 1939	FIGURES FOR 1938		
		1-3 months	4-6 months	7-12 months	Pre- school			Clinics Held	Individ- uals	Total Visits
Alexandria.....	12	32	11	12	23	78	191	12	58	160
Casselman.....	10	17	9	7	9	42	79	12	30	98
Hawkesbury.....	19	30	6	11	11	58	172	13	41	141
Plantagenet.....	12	42	22	8	14	86	179	9	62	129
Russell.....	5	7	4	6	5	22	42			
Embrun.....								6	30	59
Lancaster.....								7	22	48
TOTAL.....	58	128	52	44	62	286	663	59	243	635

School Health Service.

Activities in the schools followed the same routine as in the past. In Cornwall Township, a 14-room school which in former years had a special arrangement with the Town of Cornwall whereby it received a school health service from the school nurses in the Town, reverted to the Township at the beginning of the year. In addition, a new 10-room school, a new 5-room school and one room in another school were opened during the autumn, making 30 new class-rooms and a total of 91 class-rooms in this nursing district. Obviously, this is beyond the capacity of one nurse to handle, even though she had no activities.

In spite of the heavy load in all nursing districts, 10,065 children received special physical inspections by the nurse; and 9,461 received post-vacation inspections. 1,788 home visits were made to urge correction of defects and to discuss general health practices.

Although figures in the past are not strictly comparable, there is evidence to show that some progress is being made. For instance, in 1938, it appeared necessary to refer to physicians 37 per cent. of children inspected; whereas in 1939, 27 per cent. were referred for examination and necessary correction. The problem of securing correction of defects is still great and will continue probably while economic conditions remain as they are for such a large part of the population.

Table XI is a record of the inspections made by the nurses during the past year.

TABLE XI

	1939	1938
No. of class rooms inspected.....	401	
No. of pupils receiving S.P.I. or C.R.I.....	10,414	
No. of children referred to doctor.....	2,852	27%
No. of children referred to dentist.....	4,796	46%
No. of children with no apparent defects.....	4,223	41%
No. of children with defects of teeth only.....	3,339	32%

Table XII shows the number of major defects; the number of corrections made; and the number of apparent defects that have subsided.

TABLE XII
FINDINGS AT INSPECTION

APPARENT DEFECTS	New	Old	Defects Corrected	Apparent Defects Subsided
Vision.....	405	403	224	159
Hearing.....	23	41	2	43
Nasal breathing.....	157	354	79	108
Abnormal tonsils.....	560	1,019	209	272
Dental.....	1,918	2,878	820	22
Enlarged thyroid.....	4	11	4	182
All other.....	307	392	37	115
TOTALS.....	3,374	5,098	1,375	901

Orthopaedic Work.

An orthopaedic clinic was held in Alexandria by Dr. J. Murray, Ottawa, in November under the auspices of the Catholic Women's League. Twenty-two cases were seen. There were five new cases. Two are under treatment, two are to return in a year, and the other has not consented to treatment. Of the 17 repeats, 16 are under treatment and one does not require treatment at present. The above clinic serves Glengarry County. Cases from the other sections of the Health Unit are sent to Ottawa, Toronto and Montreal, through the efforts of the nursing staff in co-operation with family physicians.

Mental Health.

Mental Health Clinics have been held in Alfred, Hawkesbury, Alexandria and Cornwall by Dr. D. G. McKerracher, Clinic Director of the Ontario Hospital staff of Brockville. At the Alexandria Clinic, auxiliary work has been given to a small group of mentally retarded children with good results and it would be interesting to see this service extended.

Health Institute Held at Cornwall.

A Health Institute, sponsored by the Registered Nurses' Association of Ontario with the co-operation of other health agencies, was held in Cornwall for three days during the month of January. Several outstanding speakers were obtained for these meetings and the subjects covered Tuberculosis, Pneumonia, Nutrition, Maternal and Infant Welfare, Social Hygiene, Mental Hygiene and Social Welfare. The Health Unit was given space for an exhibit which consisted of a spot map showing the place of residence of cases of Tuberculosis at home and in sanatoria, and other charts depicting the control of Tuberculosis, Diphtheria and Infant Mortality in the Health Unit area.

Publication of Booklet.

A booklet entitled "What the Unit Has Accomplished—What the Unit Has to Offer" was published. While primarily for the information of the members of the Counties' Councils, over 700 copies were distributed among leading citizens of the entire area. Favourable comments were published in newspapers throughout the district.

NURSING SERVICE

Generalized Service.

The public health nursing service within the Unit is a generalized one; that is, each nurse is responsible for every phase of the public health nursing programme within her district. The initial home visit may be to a prenatal or postpartum case; it may involve the care of infants, preschool or school children; it may be to teach care of a tuberculous patient or assist in arranging for his admission to sanatorium. Whatever the specific problem which brings her to the home may be, once she has entered, every health problem in the home becomes her responsibility. So it is in schools, clinics and conferences. In each function, her aims are the same, to explain and demonstrate what modern medical science has to offer for the promotion of health and prevention of disease.

The area of the Health Unit is approximately 1,800 square miles, the population about 87,000. It is divided into eight nursing districts with one nurse in each. In the Counties of Stormont, Glengarry and Russell, each nursing district covers two townships. In Prescott County, one district has four smaller townships; the other, three townships and the town of Hawkesbury. The population of these nursing districts ranges from 6,500 to 17,000.

Each nurse has the use of a car supplied by the Provincial Department of Health. Getting about in the winter season is very difficult, more often impossible except on Provincial Highways. The nurses travel an average of 7,908 miles approximately per year. Train service is available in only three districts, and in those to only one or two centres.

Home Visiting.

As a guide and goal in home visiting, the following schedule has been attempted:

Maternity cases, at least once a month; infants, once a month; preschool, once in three months; school, once in six months, or yearly.

Tuberculosis—active cases, once a week; quiescent cases, bi-monthly; arrested and apparently arrested, once in six months or yearly.

In the current year, 7,474 home visits were made: Of these, 892 were to maternity patients; 1,406 to infants under 1 year; and 1,213 to tuberculosis patients. In addition, 1,018 visits were made in relation to clinics, of which a large proportion were for chest clinics. This represents supervision of about 5 per cent. of maternity patients; 15 per cent. of infants; and 85 per cent. of tuberculosis cases.

Schools.

The yearly programme in schools is as follows:

In the village schools, all children are weighed and measured and their vision tested. Special physical inspection by the nurse is given to all beginners; to those scheduled to leave school during the current school year; and to those with previously noted defects. The children in other grades are seen during class room inspections.

In the schools of four rooms or over, post-vacation inspection is given after the mid-summer, Christmas and Easter vacations, in order to discover symptoms of communicable, skin and other diseases. The children who are sent home as a result of these inspections are visited by the nurse in as many instances as possible.

In all one-room schools visited, special physical inspection is given by the nurse to all children in attendance at the time of the visit.

A larger volume of school work has been accomplished this year which may be attributed in part to a long open autumn season and, in a lesser degree, to an increased demand for the service.

There are 387 schools and 587 class rooms in the area. The smallest number of schools in any one district is 33 with 53 class rooms; the largest, 53 schools with 106 class rooms. Obviously, it is impossible to carry out even this minimum programme in the larger districts. Even in the smaller districts, all schools do not receive a visit strictly within the school year.

Group Teaching.

Classes in Home Hygiene and Care of the Sick were organized in eight centres with 101 sessions being conducted. Upon the outbreak of war, the County of Glengarry established a County Branch of the National Red Cross Society, under whose auspices a number of Home Nursing Groups have been

organized by local nurses. Members of the nursing staff met in conference with these nurses regarding technique and procedures. The Health Unit has also been instrumental in providing special speakers for these classes.

As in previous years, members of the staff judged First Aid Competitions at School Fairs in Glengarry and East Stormont Counties. Considerable improvement in the skill of the competitors was evident.

Special Activities.

Miss Eleanor Hollinger, of the Junior Red Cross, spent 2 weeks in May visiting schools with the nurses in the interests of Junior Red Cross Clubs. Miss Hollinger also spoke to the teachers of Glengarry and East Hawkesbury at their annual conference in October.

Two graduate students from the School of Nursing, University of Toronto, were given field experience.

We were honoured by visits from Dr. Jean Orkney, Director, Bureau of Maternal and Child Welfare, Delhi, India; Miss Lyle Creelman, Director of Nursing, Metropolitan Health Committee, Vancouver; and Miss Hazel Macdonald, Supervising Nurse, Cape Breton Health Unit, who spent several days observing the work.

In September, two members of the staff assisted with the physical examination of students applying for admission to the Provincial Normal School, Ottawa.

Two nurses attended the Annual Meeting of the R. N. A. O. and the Ontario Educational Association Meeting in Toronto during Easter week.

Four staff meetings were held during the year.

Table XIII, on page 32, is a summary of all the various activities of the nursing staff during the past year.

TABLE XIII
SUMMARY OF ACTIVITIES OF NURSING STAFF—EASTERN ONTARIO HEALTH
UNIT
For the Year 1939

TYPE OF VISIT	NURSING DISTRICT								TOTAL FOR 1939	TOTAL FOR 1938
	Cass.	Plant.	Rock.	Finch	Lanc.	Corn.	Alex.	Hawk.		
HEALTH SUPERVISION										
Infant.....	88	67	118	152	99	149	311	141	1,125	1,276
Preschool.....	17	62	33	241	190	116	101	120	880	889
School.....	143	116	331	227	238	147	174	412	1,788	1,501
Adult.....	12	96	77	126	28	19	11	209	578	604
MATERNITY										
Prenatal.....	95	48	80	75	45	13	118	35	509	439
Delivery.....	4	0	0	2	0	0	1	0	7	4
Post Partum.....	66	36	21	50	29	13	131	30	376	303
New Born.....	49	44	0	35	17	12	98	26	281	267
MORBIDITY										
Non-Communicable...	63	8	8	62	1	1	116	41	300	269
Com.—all acute.....	29	2	83	12	31	0	12	37	206	42
skin.....	0	0	18	16	0	0	0	6	40	39
V.D.....	0	6	3	7	0	0	0	0	16	13
TUBERCULOSIS										
Diagnosed.....	51	108	163	90	74	149	181	176	992	748
Suspect.....	0	1	26	30	8	23	15	5	108	66
Contact.....	0	0	10	10	37	49	7	0	113	220
Visits in behalf of.....	8	12	1	5	2	12	0	22	62	289
Social service.....	8	1	10	67	5	0	1	1	93	84
Bedside.....	(35)	(21)	(16)	(16)	(18)	(1)	(66)	.....	(173)	(149)
SPECIAL ACTIVITIES										
Re clinics.....	83	167	175	201	52	79	52	209	1,018	1,194
Promotion of work.....	87	60	122	130	85	125	143	158	910	966
All other.....	69	76	34	85	11	83	115	53	526	654
TOTAL VISITS.....	872	910	1,313	1,623	952	990	1,587	1,681	9,928	9,867
CLINICS										
Diphtheria—3 doses..	151	213	196	509	0	220	0	288	1,577	1,898
Sc. Fever—5 doses....	0	0	0	51	0	0	0	0	51	12
Vaccinations, takes....	4	356	135	28	0	0	0	154	677	1,298
CHILD HEALTH CON- FERENCES										
No. confereces held....	*16	†15	0	0	0	0	12	19	62	61
Children attending....	143	230	0	0	0	0	191	172	736	679
SCHOOLS										
Class rooms inspected	20	52	67	29	61	55	66	51	401	285
No. inspected.....	0	0	0	0	0	201	148	0	349	312
No. S.P.I.....	574	1,320	1,815	559	1,618	1,311	1,307	1,561	10,065	7,249
Quick inspections.....	1,636	1,088	1,320	435	496	1,924	2,261	301	9,461	8,193
Meetings attended.....	5	5	5	10	20	15	9	7	76	79
Meetings addressed.....	1	1	0	7	0	0	6	1	16	9
Nursing classes.....	39	12	0	14	3	0	21	12	101	35
Chest Clinics—days.....	5	10	6	3	2	5	10	6½	47½	38½
School Fairs.....	0	2	0	2	2	2	3	0	11	17
DAYS OFF DUTY—Illness..	10	2½	7	11½	8½	8½	6½	15½	70	104
VACATION—Days.....	18	18	20	18	24	18	18	18	152	133

* incl. 1 preschool clinic. † incl. 3 preschool clinics.

Conclusion.

In a generalized programme, it is desirable that each phase receive a fair distribution of time. In this large area with a small staff, this has been difficult to accomplish. With a very real tuberculosis problem and a heavy school programme demanding attention, there is the danger of these activities overshadowing the vitally important infant and maternity work, the need for which is not yet realized by the public. In addition, special activities such as immunization and chest clinics cut into routines considerably. Each nurse is responsible to from two to five medical officers of health and she must conform to their plans, for instance, in the matter of immunization clinics.

It would seem that in a locality where there are so many natural barriers to success, as scattered population, difficult weather conditions for four or five months of the year, low income group and so forth, a smaller area or an augmented staff would assure better returns. Nevertheless, in view of the comparatively short period this Unit has been in operation, there have been some worth while accomplishments, as lowered infant and tuberculosis death rates, fair percentage of school children immunized against diphtheria and small pox, and perhaps most significant of all, a definitely awakened interest and a realization of the need for a public health service.

SANITARY ENGINEERING ACTIVITIES

During 1939, as was the case in 1938, the milk supplies of the Health Unit area received increased attention. The construction of a number of new pasteurizing plants in the autumn of 1938 made more frequent inspections necessary for the instruction of inexperienced operators and to secure compliance with Departmental regulations with respect to building and equipment. The usual supervision of municipal water supplies was maintained and the services of the engineer were available to public bodies and private individuals for special investigations.

Water Supplies.

At Plantagenet, extensive changes in the waterworks distribution system were made to secure increased pressure and a more potable supply. The spring creek from which the supply is secured was developed at a point near its source a distance of about 2,000 feet above the existing works. A small dam was built and a concrete reservoir with a storage capacity of between 35,000 and 40,000 gallons. From the reservoir, the supply is carried through 8-inch wood-stave pipe to the commencement of the old system. From this point, the existing 4-inch steel main was replaced by 6-inch wood-stave pipe as far as the Treadwell road crossing. The main crossing the Nation River, which has been a source of trouble almost every year because of ice conditions, was replaced with a 4-inch insulated wood-stave pipe laid across the county bridge. An area of 15 acres at the source has been purchased and is to be reforested. Future plans include the extension of this forest area. The work involved an expenditure of between \$8,000 and \$9,000. It has resulted in a marked improvement in the pressure in the distribution system and the physical quality of the supply. The ability of the new source to provide sufficient water for peak demands, however, has not been definitely shown. There is an emergency connection with the old source and next year, if necessary, it is planned to develop the new source to secure an increased flow.

At Clarence Creek, improvements were effected in the spring area from which this supply is drawn. These improvements are reported to have eliminated to a large extent the hydrogen sulphide which has been a source of annoyance in the past during the summer months.

At Rockland, during August and September, reports of analyses of the local supply showed gross contamination. Investigation indicated that this pollution was introduced during the relaying of a section of the chief supply main. Sterilization of the distribution system by means of a heavy chlorine dosage was recommended but the contamination cleared up before the necessary materials were secured. On the receipt of the first adverse report, the public were warned by the local health authorities and this warning was not revoked until the safety of the supply was assured.

Three routine chlorination inspections of each of the following supplies: Alfred, Hawkesbury and Rockland, were made, and one inspection only was made at Alexandria, Cornwall and the St. Lawrence Sanatorium.

Enquiries were made by three individuals with respect to the examination and protection of private wells. A total of 94 water samples were secured for bacterial examination, 74 of which were taken from municipal supplies. An additional 74 samples were submitted from public supplies by local health authorities.

Sewage Disposal.

Some difficulty was experienced in the operation of the sewage disposal plant at the St. Lawrence Sanatorium. Following an investigation, certain recommendations were made to improve conditions. The pollution of the Garry River as the result of the discharge of sewage from the Town of Alexandria was also investigated. At St. Mary's Convent, Vankleek Hill, advice was given to improve the sewage disposal facilities at this institution. Advice was given to five individuals with respect to private septic tank installations. These included residents of the Town of Alexandria and the Townships of Lochiel, Finch and East Hawkesbury.

Continued co-operation with cheese factory instructors employed by the Provincial Department of Agriculture has resulted in securing improved facilities for wash water disposal at a number of factories. Recommendations were made in connection with ten factories and an inspection was made at one factory where improvements were effected four years ago. These factories were located as follows: Lochiel Township, 4; Kenyon Township, 2; East Hawkesbury Township, 2, and Roxborough, North Plantagenet and Finch Townships, 1 each.

Five other drainage problems were investigated and recommendations made where corrections were necessary. These were distributed as follows: Alexandria, 3; North Plantagenet Township, 1; and Roxborough Township, 1.

School Sanitation.

Seven school inspections were made. In six instances, recommendations were made respecting improved toilet facilities. At the seventh school, suggestions to improve the ventilation were made. In five of the schools, the changes recommended were carried out. Schools visited were located in the following municipalities: Charlottenburgh Township, 2; Rockland, Casselman, Alfred Township, Caledonia Township and Roxborough Township, 1 each.

Milk Supplies.

During 1939, no urban centres in the Health Unit area were brought under the Provincial Legislation making the sale of pasteurized milk compulsory. The Legislation was extended, however, to certain rural areas adjoining towns.

These areas were portions of Clarence, West Hawkesbury, Kenyon and Lochiel Townships. No new pasteurizing plants were constructed, the number in operation being 19.

During the year a total of 60 inspections covering the equipment and methods of operation were made. This compares with 31 similar inspections made last year. 115 samples of pasteurized milk were secured by the writer from 26 dealers in 5 centres. In addition, 104 samples were submitted by local health authorities. The logarithmic average of the standard plate counts was 5,200. This compares with an average of 13,400 obtained in the examination of 127 samples in 1938 and a figure of 34,000 in 1937 when 69 samples were examined. While the improvement in the average standard plate count during the past three years has been marked, *b. coli* was reported in 112 or 51.1 per cent. of the samples examined this year. Comparative figures for 1937 and 1938 are not available, but this percentage is considerably higher than it should be.

A total of 96 samples of raw milk were secured from 31 dealers in 13 centres where the sale of pasteurized milk is not compulsory. The logarithmic average of the standard plate counts was 27,000. This compares with figures of 46,000 and 56,000 obtained in 1938 and 1937 respectively.

Investigations in connection with complaints of the sale of raw milk were made in Alexandria, Hawkesbury, Rockland and Vankleek Hill. In the Rockland area, it was deemed advisable to take legal action against one individual. A conviction was secured. In these centres, the illicit sale of small amounts of raw milk by private individuals owning one cow continues to give some trouble.

At Lancaster, Casselman, L'Orignal and Maxville, local health authorities and dairymen were interviewed concerning the introduction of compulsory pasteurization in these areas. By virtue of an Order-in-Council passed on Dec. 28th and coming into effect on March 1st, 1940, the compulsory sale of pasteurized milk will be extended to the following sections of the Health Unit area: Casselman, Lancaster, L'Orignal and Maxville villages; the police village of Plantagenet; the Townships of Alfred and West Hawkesbury and portions of the Townships of Cambridge, Charlottenburgh, Lancaster, Roxborough and Kenyon.

Miscellaneous.

A total of eight other problems of various kinds were investigated and where necessary, reports prepared and recommendations made. Two addresses on "Rural Sanitation" were given and one talk on "Milk Production and Handling."

Distribution of Work.

Summarizing all activities, the work was spread over 23 of the 28 municipalities comprising the Unit area. Twenty local medical officers of health were contacted on 63 occasions. A total of 53 special investigations were made at the request of the following: Head Office, 6; Provincial Government Officials, 8; private individuals, 13; and local boards of health, 26. Requests from local boards of health were received from 11 municipalities.

REPORT OF THE SOLICITOR

K. G. GRAY, M.D., K.C., *Solicitor to the Department.*

The Solicitor acted as guardian *ad litem* for two patients in Ontario Hospitals.

The Solicitor is acting for officials of the Department in five actions in the Supreme Court. Two applications for *habeas corpus* were brought during the year on behalf of patients in Ontario Hospitals.

It was necessary to obtain judgment in county court against four creditors for maintenance owing to the Department on account of patients in Ontario Hospitals.

The following legislation was passed by the Legislative Assembly in the 1939 session:

The following Acts were amended:

The Athletic Commission Act, chap. 4.

The Cemetery Act, chap. 5.

The Pharmacy Act, chap. 34.

The Psychiatric Hospitals Act, chap. 36.

The Public Health Act, chap. 37.

The Sanatoria for Consumptives Act, chap. 42.

The Public Hospitals Act, chap. 38.

The Venereal Diseases Prevention Act, chap. 43.

The Mental Hospitals Act (contained in *The Statute Law Amendment Act*, chap. 47, sec. 20).

On the recommendation of the Minister of Health, regulations and amendments to regulations under the following Acts were approved by the Lieutenant-Governor in Council:

The Cemetery Act, February 28th.

The Mental Hospitals Act, April 1st (3).

The Mental Hospitals Act, October 4th.

The Nurses' Registration Act, January 17th.

The Nurses' Registration Act, April 1st.

The Nurses' Registration Act, June 27th.

The Optometry Act, October 20th.

The Private Hospitals Act, June 9th.

The Public Hospitals Act, January 17th.

The Public Hospitals Act, June 27th.

The Public Hospitals Act, October 20th.

The Public Hospitals Act, December 6th.

The Public Health Act, March 7th.

The Public Health Act, May 30th (2).

The Public Health Act, September 5th.

The Public Health Act, December 28th (2).

The Sanatoria for Consumptives Act, June 27th.

The Venereal Diseases Prevention Act, November 9th.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 28th day of February, A.D., 1939.

Upon the recommendation of the Honourable H. C. Nixon, Acting Minister of Health, the Committee of Council advise that pursuant to the provisions of Section 8 of *The Cemetery Act*, the following regulation made by the Department of Health respecting cemeteries, be approved by Your Honour:

In the case of any burial where the Last Post Fund arranges and pays for the burial, the Last Post Fund shall have the power and authority to provide and erect a monument, gravestone or other memorial, and in any such case no other monument, gravestone or other memorial shall be placed upon the grave unless the owner obtains the consent in writing thereto of the Last Post Fund.

Certified,

C. F. BULMER,

Clerk, Executive Council.

Copy of an Order-in-Council, approved by the Honourable, the Lieutenant-Governor, dated the 1st day of April, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to clause (a) of subsection (2) of section 5 of *The Mental Hospitals Act*, R.S.O., 1937, Chapter 392, the following amendment to the regulations under the said Act be approved:

Regulation No. 1 which was approved by Your Honour on the 26th day of June, 1935, as amended by an Order-in-Council approved by Your Honour on the 22nd day of October, 1935, and as amended by an Order-in-Council approved by Your Honour on the 29th day of January, 1936, and as amended by an Order-in-Council approved by Your Honour on the 22nd day of February, 1936, and as amended by an Order-in-Council approved by Your Honour on the 27th day of February, 1937, be further amended by adding thereto the following:

"The Ontario Hospital, St. Thomas," so that the Regulations as amended shall now read as follows:

The following institutions shall be hospitals and hospital schools established under *The Mental Hospitals Act*, and shall be subject to the provisions of the said Act and these regulations:

The Ontario Hospital, Brockville.
 The Ontario Hospital, Cobourg.
 The Ontario Hospital, Hamilton.
 The Ontario Hospital, Kingston.
 The Ontario Hospital, London.
 The Ontario Hospital, New Toronto.
 The Ontario Hospital School, Orillia.
 The Ontario Hospital, Penetanguishene.
 The Ontario Hospital, Toronto.
 The Ontario Hospital, Woodstock.
 The Ontario Hospital, Whitby.

The premises commonly known as the Industrial Farm at Fort William, henceforth to be known as the Ontario Hospital, Fort William.

The premises formerly used and described as a gaol farm for women in the village of Concord in the Township of York, henceforth to be part of the Ontario Hospital, New Toronto.

The Ontario Hospital, St. Thomas.

Certified,

C. F. BULMER,

Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 1st day of April, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that Section 12 of the regulations pursuant to *The Mental Hospitals Act*, approved by Your Honour on the 26th day of June, 1935, be repealed, and the following substituted therefor:

The minimum rate for which a patient, or his estate, or the person liable for his maintenance, shall be liable in the general wards of any institution, except the Ontario Hospital, Whitby, and the Ontario Hospital, Woodstock, shall be \$7.00 per week, and for the Ontario Hospital, Whitby, and the Ontario Hospital, Woodstock, shall be \$10.50 per week, and in cases where the patient's condition requires special care and treatment such further charges may be made as the superintendent may determine. Such rate shall not include clothing and the cost of clothing shall be an additional charge upon the patient, or his estate, or the person liable for maintenance.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 1st day of April, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the regulations pursuant to Section 5 of *The Mental Hospitals Act*, approved by Your Honour on the 26th day of June, 1935, be amended by adding thereto the following regulation:

9a. In any case where the superintendent releases any patient on probation according to the provisions of Section 36 of *The Mental Hospitals Act*, the superintendent shall have authority to obtain from the person who signs the written undertaking referred to in the said section, an agreement in the prescribed form, signed by such person to the effect that in the event that it becomes necessary to return the patient to the institution, such person will return him and will provide any expenses so incurred.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 4th day of October, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to the provisions of clause (a) of subsection (2) of Section 5 of *The Mental Hospitals Act*, regulation numbered 1 made pursuant to the said Act, be amended by adding the following:

The Ontario Hospital, Langstaff.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 17th day of January, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the regulations with respect to training schools for nurses, approved by Your Honour on the 10th day of December, 1936, and amended by an Order approved by Your Honour on the 14th day of February, 1938, be further amended as follows:

Clause (c) of subsection (1) of Section 21 of the said regulations is amended by striking out the words and figures "July 1st, 1939" and inserting in lieu thereof the words and figures "October 1st, 1940," so that the said clause shall now read as follows:

(c) after October 1st, 1940, the completion of middle school standing in twelve papers as follows (as prescribed by the Department of Education):

Six Required Papers:

English Literature.
English Composition.
One subject of Mathematics.
Physics or Agriculture No. 1.
Chemistry or Agriculture No. 2.
Canadian History.

Six Papers, Optional:

Languages—not more than four papers in two subjects.
Latin—Literature, Composition.
French—Literature, Composition.
Spanish—Literature, Composition.
Greek—Literature, Composition.
German—Literature, Composition.
Household Science No. I and No. II.
Geometry.
Ancient History.
Arithmetic (special).
Zoology (special).

Certified,

C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 1st day of April, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the regulations pursuant to *The Nurses' Registration Act, R.S.O., 1937*, chap. 230, approved by Your Honour on the 10th day of December, 1936, be amended by adding to section 5 thereof, the following subsection:

(3) Any nurse who has been graduated by an approved school for nurses outside of Canada may be entitled to sit for examination to qualify for registration in the Province of Ontario, provided that:

- (a) such nurse has been registered under regulations satisfactory to the Department of Health; and
- (b) such nurse makes application in the prescribed form as mentioned in Section 3; and
- (c) such nurse pays an examination fee of \$5.00 and a registration fee of \$5.00; and
- (d) the director is satisfied that the course of training received by such nurse is equivalent to the course of training received by a nurse in an approved training school in Ontario.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 27th day of June, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the attached regulations under *The Nurses' Registration Act*, be approved.

Certified,

C. F. BULMER,
Clerk, Executive Council.

REGULATIONS Pursuant to *The Nurses' Registration Act*.

Nurses registered by examination or as "Intermediate" nurses on the General Part of the Register of the General Nursing Council for Scotland shall be accepted for registration by the Director of Nurses' Registration for Ontario, and, further, application for "existing" nurses shall be considered on their respective merits; provided that

- (a) the general educational standard of the applicant can be evaluated as corresponding to the general educational standards required in Ontario;
- (b) the applicants who have not had a course in obstetrics equivalent to the undergraduate course given in Ontario will be required to take a post-graduate course in obstetrics acceptable to the Director before registration.

NOTE:—A General Hospital is defined as one which admits men, women and children, and gives instruction in the four main services—medical, surgical, gynaecological and children's diseases.

Such general training may be given in one General Hospital recognized as a complete training school, or in recognized affiliated or associated hospital which together give instruction in the above named services.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 20th day of October, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise pursuant to the provisions of *The Optometry Act*, that the attached amendment to the regulations under the said Act, and approved by Order-in-Council dated the 27th day of January, 1937, be approved.

Certified,

C. F. BULMER,
Clerk, Executive Council.

WHEREAS pursuant to Section 3 of *The Optometry Act*, being R.S.O. 1937, Chapter 246, it is provided that the Board of Examiners in Optometry appointed under the authority of the said Act may make regulations for the purposes set out in the said section, subject to the approval of the Lieutenant-Governor in Council.

NOW THEREFORE BE IT ENACTED that the Regulations passed by the Board of Examiners in Optometry pursuant to the said Statutes and approved by Order-in-Council dated the 27th day of January, 1937, be and the same are hereby amended as follows:

(1) Section 21 of the said Regulations is amended by striking out the words "Junior Matriculation in Ontario or its equivalent," and substituting and inserting in lieu thereof the words "Honour Matriculation in Ontario, or its equivalent," so that the said sub-section shall now read as follows:

"Section 21—Any person desiring to be admitted as a student at the College of Optometry, shall register at the College and produce evidence of good character and that he had completed the Honour Matriculation in Ontario, or its equivalent, and has complied with such other requirements, as the Board may subscribe."

WE, the undersigned, being all members of the Board of Examiners in Optometry appointed under the authority of the said Act, do hereby consent and agree and enact that the Regulations of the Board as approved by Order-in-Council dated the 27th day of January, 1937, be and the same are hereby amended as above set out.

CLIFFORD A. TAYLOR.
GEORGE M. BOSNELL.
GRENVILLE W. GOODWIN.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 9th day of June, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the regulations pursuant to *The Private Hospitals Act*, approved by Your Honour on the 7th day of July, 1936, be amended by adding thereto the following:

Hospitals for Alcoholic Patients.

29. The license issued to a private hospital may provide that such hospital shall be a hospital for alcoholic patients, and any hospital so licensed shall be subject to all the provisions of these regulations, including regulations numbered 29 to 33 inclusive respecting hospitals for alcoholic patients.

30. Any hospital licensed as a hospital for alcoholic patients shall admit only patients who require treatment for alcoholism.

31. No person shall be admitted as a patient in any such hospital without the certificate of a duly qualified medical practitioner certifying that such person required treatment for alcoholism and is a suitable subject for treatment in such hospital, and that such treatment is advisable.

32. The register kept by every such hospital shall show the name and address of a duly qualified medical practitioner who has charge of the treatment of every patient.

33. The medical practitioner in charge of any patient shall see such patient at least twice in each week during the time that such patient is in the hospital and the medical practitioner shall make an entry in the records of the hospital showing the condition of the patient at the time of every such visit.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Amendment to Regulations under the Public Hospitals Act approved by Order-in-Council, dated January 17th, 1939.

Unpasteurized milk prohibited.

66. No hospital shall use or permit within the hospital premises the use of milk which has not been pasteurized, as provided in section 95a of the Public Health Act.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 27th day of June, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the attached regulations made pursuant to the provisions of Section 4 of *The Public Hospitals Act*, be approved.

Certified,

C. F. BULMER,
Clerk, Executive Council.

The regulations pursuant to Section 4 of *The Public Hospitals Act*, approved by an Order-in-Council dated the 30th day of November, 1938, are amended as follows:

1. The said regulations are amended by adding thereto the following section:

56a In the event that a sanatorium is paying for the maintenance of a patient in a hospital at the rate of \$2.35 for each day that such patient receives treatment in the hospital as provided in the regulations under *The Sanatoria for Consumptives Act*, such hospital shall not receive any Provincial aid or municipal grant in respect of such patient.

2. Regulation number 56 is amended by adding thereto the following subsection:

(3) Unless otherwise directed by an inspector, no Provincial aid shall be payable for a patient who is suffering from tuberculosis of the lung at the expiration of 30 days from the day of admission of such patient.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 20th day of October, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the Regulations pursuant to *The Public Hospitals Act*, approved by Order-in-Council, dated the 30th day of November, 1938, be amended by adding thereto the following regulations, numbered 3a, 3b and 3c:

3a. Notwithstanding any provision of the By-laws of any hospital, the fiscal year of every hospital shall be the calendar year.

3b. Notwithstanding any provision of the By-laws of any hospital, the annual meeting of the hospital shall be held between the first day of January and the fifteenth day of February, on a date to be determined by the Board.

3c. Notwithstanding any provision of the By-laws of any hospital, the Board shall have authority to determine the dates on which all meetings of the Board are to be held.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 6th day of December, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the regulations pursuant to *The Public Hospitals Act, R.S.O., 1937*, Chapter 390, be amended as follows:

Regulation numbered 3b, approved by Order-in-Council, dated the 20th day of October, 1939, is repealed and the following substituted therefor:

Notwithstanding any provision of the By-laws of any hospital, or any provision of any general or special act under which any hospital was created, established or incorporated, the annual meeting of every hospital shall be held between the first day of January and the last day of April, on a date to be determined by the Board.

Regulation numbered 3c, approved by Order-in-Council, dated the 20th day of October, 1939, is repealed and the following substituted therefor:

Notwithstanding any provision of the By-laws of any hospital, or any provision of any general or special act under which any hospital was created, established, or incorporated, the Board shall have authority to determine the dates on which all meetings of the Board are to be held.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Amendment to Regulations for The Control of Communicable Diseases.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 7th day of March, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the Regulations for the Control of Communicable Diseases made under *The Public Health Act* and approved by Your Honour on the 10th day of December, 1937, be amended as follows:

1. The said Regulations are amended by inserting after section 3 the following section:

3a. Section 60a of *The Public Health Act* shall apply to typhoid fever and paratyphoid fever.

2. Regulation No. 10 of the said Regulations is repealed.

3. Paragraph 24 of Regulation No. 22 under the heading "Paratyphoid Fever" is amended by adding at the end thereof the following:

Within five days after a patient has become afebrile following an attack of paratyphoid fever the medical officer of health shall cause to be submitted to a provincial laboratory or laboratory approved by the Department, specimens of urine and feces for examination for the presence or absence of *E. paratyphosus*. Two such examinations shall be negative for the *E. paratyphosus* with specimens taken at least seven days apart before the patient shall be released from isolation restrictions as a convalescent carrier. In the event that these specimens are negative for the paratyphoid bacilli the patient shall be released from isolation. If paratyphoid bacilli are found to be present in such examination, then the individual shall be considered a convalescent carrier and be subject to restrictions set out in Regulation 28.

In the case of patients who are employed in the handling, production, delivery or sale of milk or milk products, or in the preparation or handling of food, four negative examinations for the presence of paratyphoid organisms shall be required before patient shall be released from isolation restrictions as outlined in Regulation 28.

In the case of patients who are found to be excreting the paratyphoid organism subsequent to an attack of the disease such information shall be reported to the Department of Health of Ontario giving the full name, age, occupation and address of such convalescent carrier.

4. Paragraph 42 of Regulation No. 22 under the heading "Typhoid Fever" is amended by adding at the end thereof the following:

Within five days after a patient has become afebrile following an attack of typhoid fever the medical officer of health shall cause to be submitted to a provincial laboratory or laboratory approved by the Department, specimens of urine and feces for examination for the presence or absence of typhoid organisms. Two such examinations shall be negative with specimens taken at least seven days apart before the patient shall be released from restrictions as a convalescent carrier. In the event that these specimens are negative for the typhoid bacilli the patient shall be released from isolation. If typhoid bacilli are found to be present in such examination then the individual shall be considered a convalescent carrier and be subject to restrictions set out in Regulation 28.

In the case of patients who are employed in the handling, production, delivery or sale of milk or milk products, or in the preparation or handling of food, four negative examinations for the presence of typhoid organisms shall be required before patient shall be released from isolation restrictions as outlined in Regulation 28.

In the case of patients who are found to be excreting the typhoid organisms subsequent to an attack of the disease such information shall be reported to the Department of Health of Ontario giving the full name, age, occupation and address of such convalescent carrier.

5. The Regulations are also amended by adding the following sections:

PARATYPHOID AND TYPHOID CARRIERS

REGULATION 24—Whenever in the epidemiological investigation of a case or cases of typhoid or paratyphoid fevers any person is suspected of being a typhoid or paratyphoid carrier, the medical officer of health may require such person whom he believes to be a carrier to submit two specimens of feces and urine for examination as to the presence or absence of typhoid or paratyphoid organisms.

If upon such examination such person is found to be excreting typhoid or paratyphoid organisms he shall be declared a typhoid or paratyphoid carrier by the medical officer of health of the municipality in which such carrier resides and shall be served with Form I Typhoid, declaring him to be a typhoid or paratyphoid carrier.

REGULATION 25—The medical officer of health upon the determination that a person is a typhoid or paratyphoid carrier shall immediately report the fact to the Department of Health of Ontario giving the full name, age, occupation and address of such carrier together with any other information relating to possible or probable infection of others. The medical officer of health shall also inform such person, or in the case of a minor under eighteen years of age, his guardian, that such person is a typhoid or paratyphoid carrier and shall give instructions in detail to the carrier as to the precautions to be observed in preventing the spread of typhoid or paratyphoid fevers.

REGULATION 26—Any convalescent carrier or chronic carrier who is deprived of his means of livelihood by any order given by the medical officer of health may be entitled to compensation from the Provincial Department of Health on the following basis:

- (1) For unmarried person not exceeding twenty dollars per month;
- (2) For married man with dependents under the age of sixteen years, not exceeding twenty dollars per month plus five dollars per month for each dependent.

The decision as to who shall be eligible for compensation and the amount shall rest with the Minister, whose decision shall be final, unless amended or revoked by him.

REGULATION 27—The release of any person who has been declared a chronic typhoid or paratyphoid carrier shall be made only by the Department of Health. To obtain release from isolation restrictions the Department shall be satisfied that:

- (a) The gall bladder has been removed;
- (b) That subsequent to the removal of the gall bladder each of three specimens of the duodenal contents taken in a hospital at intervals of not less than twenty-four hours, has been examined by a provincial laboratory and found to contain no typhoid or paratyphoid bacilli;
- (c) Further that subsequent to the removal of the gall bladder each of at least eight successive specimens of liquid feces taken in a hospital on successive days and under circumstances which do not permit of substitution, has been examined by a provincial laboratory and found to contain no typhoid or paratyphoid bacilli.

INSTRUCTIONS TO TYPHOID OR PARATYPHOID CARRIER

REGULATION 28—

- (a) A convalescent carrier shall observe the same precautions as a chronic carrier until released from restrictions;
- (b) A chronic typhoid or paratyphoid carrier shall not prepare or handle any food or drink which is to be sold or distributed to any other person;
- (c) The urine and feces of a typhoid or paratyphoid carrier shall be disposed of in such a manner as to not endanger any public or private water supply and shall not be accessible to flies;
- (d) No typhoid or paratyphoid carrier shall conduct or be employed in any restaurant, hotel or boarding house or reside in any boarded home for children;
- (e) No typhoid or paratyphoid carrier shall engage in occupation of nurse, cook, housemaid, waiter or in any occupation involving the handling of milk or milk products or of utensils used in the production thereof;
- (f) No typhoid or paratyphoid carrier shall reside on any premises from which milk or cream is sold or shipped for sale to any dairy, creamery, butter or cheese factory unless a written guarantee endorsed by the producer or shipper is obtained from such carrier that they shall not engage in any way in the production of milk or care of the cattle or in handling any of the utensils used in milk production;
- (g) No typhoid or paratyphoid carrier shall change his place of residence without giving due notice to the medical officer of health of such proposed change and the medical officer of health shall give notice of such change of residence to the medical officer of health of the municipality in which the carrier proposes to reside; and also the Department of Health.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 30th day of May, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to Section 95a of *The Public Health Act*, the said section 95a of *The Public Health Act* be made applicable to the municipalities and areas set forth in the memorandum hereto attached, and that this Order shall come into force and be effective from June the 30th, 1939, to October the first, 1939, inclusive, and thereafter from June the first to October the first, inclusive, each year.

Certified,

C. F. BULMER,
Clerk, Executive Council.

1. THE VILLAGES OF Erieau, Erie Beach, Sturgeon Point.
2. That part of Harwich Township, in the County of Kent, lying south of the line between Concessions 2 and 3, and south of the line between Lots 2 and 3 running from Erie Beach.
3. That part of the Township of South Walsingham, in the County of Norfolk, lying south of the line between Concessions 2 and 3.
4. That part of the Township of Charlotteville, in the County of Norfolk, lying south of the line between Concessions 1 and 2.
5. That part of Woodhouse Township in the County of Norfolk, lying south of the line between Concessions 2 and 3.
6. IN THE DISTRICT OF MUSKOKA—The Townships of Brunel, Cardwell, Chaffey, Draper, Franklin, Freeman, McLean, Macaulay, Medora, Monck, Morrison, Muskoka, Oakley, Ridout, Ryde, Stephenson, Stisted, Watt and Wood; and the Villages of Port Sydney and Windermere.
7. IN THE TOWNSHIP OF FLOS, COUNTY OF SIMCOE—The area lying north of the road between Concessions 7 and 8, and west of the line between Lots 15 and 16.
8. IN THE TOWNSHIP OF SUNNIDALE, COUNTY OF SIMCOE—The part north of the road between Concessions 12 and 13.
9. IN THE TOWNSHIP OF NOTTAWASAGA, COUNTY OF SIMCOE—That part north of the line between Lots 30 and 31.
10. That part of Innisfil Township in the County of Simcoe, lying east of the line between Lots 20 and 21; and the area north of the road between Concessions 12 and 13 with the easterly boundary being the line between Lots 10 and 11.
11. IN THE COUNTY OF YORK—That part of the Township of North Gwillimbury west of the line between Concessions 3 and 4 and also the area north of the line between Lots 19 and 20.
That part of the Township of Georgina north of the line between Concessions 6 and 7.
12. IN THE COUNTY OF ONTARIO—That part of the Township of Brock north of the line between Concessions 13 and 14 and west of the line between Lots 6 and 7.
That part of the Township of Thorah west of the line between Lots 10 and 11.
That part of the Township of Mara west of the Canadian Pacific Railway tracks and west of the line between Lots 25 and 26.
That part of the Township of Rama west of the line between Lots 18 and 19.
13. That part of Brighton Township, County of Northumberland, lying south of the Canadian National Railway line.
14. IN VICTORIA COUNTY—The Townships of Fenelon, Verulam, Mariposa and Ops.
15. IN THE COUNTY OF ONTARIO—The Township of Scugog, and that part of the Township of Reach lying east of the line between Lots 14 and 15, and south of the line between Concessions 10 and 11.
16. IN THE COUNTY OF DURHAM—The Township of Cartwright, and that part of the Township of Manvers west of the line between Lots 10 and 11, and north of the line between Concessions 11 and 12.
17. IN THE COUNTY OF NORTHUMBERLAND—That part of the Township of Hamilton north of the line between Concessions 7 and 8.
18. All Townships in the District of Manitoulin.
19. IN TORBOLTON TOWNSHIP, COUNTY OF CARLETON—The area north of the road between Concessions 3 and 4.
20. IN THE TOWNSHIP OF FITZROY, COUNTY OF CARLETON—The area north of the line between Lots 20 and 21, east of the line between Concessions 7 and 8, and west of the line between Concessions 10 and 11.
21. IN THE DISTRICT OF PARRY SOUND—The Townships of Humphrey, Conger, Foley, Cowper, McDougall, Ferguson and Carling, and the Village of Rosseau.

22. IN THE COUNTY OF LANARK—The Townships of Burgess North, Elmsley North, Bathurst and Sherbrooke South.
- IN THE COUNTY OF LEEDS—The Townships of Bastard, Elmsley South, Crosby North.
- IN THE COUNTY OF FRONTENAC—The Townships of Oso and Olden.
23. IN THE COUNTY OF NORTHUMBERLAND—The Township of Seymour north of the line between Concessions 10 and 11.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 30th day of May, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to Section 95a of *The Public Health Act*, the said Section 95a of *The Public Health Act* be made applicable to the municipalities and areas set forth in the memorandum hereto attached, and that this Order shall come into force on June 30th, 1939.

Certified,

C. F. BULMER,
Clerk, Executive Council.

1. THE VILLAGES OF Bloomfield, Braeside, Brussels, Port Carling, Crystal Beach, Jarvis, Newcastle, Portsmouth, Stirling, Streetsville, Thamesville, Wellington, Wheatley, Woodville.
2. That part of Mersea Township, County of Essex, lying south of the line between Concessions 6 and 7.
3. That part of Gosfield South Township in the County of Essex, lying south of the line between Concessions 3 and 4.
4. That part of Barton Township, in the County of Wentworth, included in Concession 5.
5. Those parts of the Townships of Bosanquet and Stephen, Counties of Lambton and Huron, contained in the Police Village of Grand Bend.
6. THE TOWNSHIPS OF (a) Romney, in the County of Kent; (b) Colchester South, in the County of Essex; (c) Malden, in the County of Essex; (d) Anderdon, in the County of Essex; (e) That part of the area occupied by the Police Village of Belmont in the County of Middlesex.
7. IN THE COUNTY OF HASTINGS—That part of Sidney Township west of the line between Lots 5 and 6 and south of the Canadian Pacific Railway tracks.
8. That part of the Township of Gwillimbury East, County of York, included in the Police Village of Mount Albert.
9. IN THE COUNTY OF GLENGARRY—In the Township of Kenyon, the area south of the line between Concessions 4 and 5 and east of the line between Lots 12 and 13; and in the Township of Lochiel, south of the line between Concessions 3 and 4, and west of the line between Lots 25 and 26.
10. IN THE COUNTY OF PRESCOTT—That area north of the line between Concessions 2 and 3 in the Township of Hawkesbury West.
11. IN THE TOWNSHIP OF WILLIAMSBURG, COUNTY OF DUNDAS—The area bounded on the north by the line between Concessions 5 and 6, on the east by the line between Lots 22 and 24; on the south by the road between Concessions 4 and 5; and on the west by the Township boundary.
12. IN THE COUNTY OF RUSSELL—The area north of the base line in the Township of Clarence.
13. IN THE COUNTY OF DUNDAS—That portion of Winchester Township bounded on the north by the line between Concessions 7 and 8, on the east by the line between Lots 6 and 7, on the south by the line between Concessions 4 and 5, and on the west by the Township boundary.
14. IN THE COUNTY OF GRENVILLE—That portion of the Township of Edwardsburg south of the line between Concessions 2 and 3.
15. IN THE DISTRICT OF TEMISKAMING—The Townships of Teck, Lebel, Gauthier, McVittie, Hearst, McGarry and McFadden.

16. IN THE COUNTY OF WELLAND—That part of Bertie Township south of the line between Concessions 2 and 3, and west of the line between Lots 20 and 21.
17. IN THE COUNTY OF ONTARIO—That part of Pickering Township south of the line between Concessions 2 and 3; and that part of the Township of Whitby south of the line between Concessions 3 and 4.
18. IN THE COUNTY OF PRINCE EDWARD—The Township of Ameliasburg contained in Concession 1 and lying east of the line between Lots 76 and 77 and west of Lot 58.
19. The area in the Police Village of Maple in the Township of Vaughan; the area in the Police Village of St. Jacobs in the Township of Woolwich.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 5th day of September, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the attached Regulations respecting courses of instruction and qualifications for medical officers of health, sanitary inspectors and public health nurses, made pursuant to Clause zc of Section 5 of *The Public Health Act*, be approved by Your Honour.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Regulations respecting courses of instruction and qualifications for medical officers of health, sanitary inspectors and public health nurses.

Pursuant to Clause zc of Section 5 of *The Public Health Act*.

1. These regulations shall apply only to a medical officer of health, a sanitary inspector or public health nurse who is appointed after the date upon which these regulations shall come into force.

MEDICAL OFFICERS OF HEALTH

2. No person shall be appointed as a full-time medical officer of health unless prior to his appointment he has secured a certificate or diploma issued by a Canadian university, following not less than one year's full-time post-graduate study of public health, or a similar qualification issued by a university outside Canada and accepted as equivalent by a Canadian university.

3. No person shall be appointed as a part-time medical officer of health for a municipality with a population exceeding 4,000 unless prior to his appointment he has devoted not less than one month to a course of instruction designated by the Minister of Health, and completed to his satisfaction, or has had at least five years' experience as medical officer of health in a comparable municipality in the Province of Ontario.

4. Any part-time medical officer of health for a municipality having a population of less than 4,000 shall within one year after his appointment as medical officer of health complete a course of instruction designated by the Minister of Health.

SANITARY INSPECTORS

5. In these regulations the term "sanitary inspector" shall include milk inspector, plumbing inspector, food inspector.

6. No person shall be appointed as a full-time sanitary inspector unless he is a veterinary surgeon, or unless, prior to his appointment, he has secured the certificate granted by the Canadian Public Health Association or by certifying organizations recognized by the Association for this purpose.

7. The qualifications of every part-time sanitary inspector shall be reviewed by the Department of Health of Ontario, and any inspector who is deemed by the Department not to have the necessary qualifications or experience may be required to secure such experience or qualifications in a municipality designated for this purpose by the Department.

PUBLIC HEALTH NURSES

8. No person shall be engaged as a public health nurse unless she has the qualifications hereinafter mentioned.

9. A nurse who is working under the daily supervision of a directing nurse in charge of public health nursing shall have the following qualifications:

- (a) Registration under *The Nurses' Registration Act*, and
- (b) A certificate from a university certifying that the nurse has satisfactorily completed a course of not less than one year in public health nursing.

10. A nurse who is not working under daily supervision, as mentioned in Section 9, shall have the following qualifications:

- (a) Registration under *The Nurses' Registration Act*,
- (b) Two years' experience in nursing following graduation, preferably in public health nursing.
- (c) A certificate from a university certifying that the nurse has satisfactorily completed a course of not less than one year in public health nursing.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 28th day of December, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that Section 95a of *The Public Health Act* as enacted by Section 8 of *The Public Health Amendment Act, 1938*, be made applicable to the municipalities and areas designated in the attached schedule.

The Committee further advise that this Order shall come into force and be effective from June the first to October the first, inclusive, in each year.

Certified,

C. F. BULMER,
Clerk, Executive Council.

1. IN THE DISTRICT OF MUSKOKA—The Township of Baxter.
2. IN THE COUNTY OF FRONTENAC—The Townships of Barrie, Clarendon, Bedford, Hinchinbrooke, Kennebec, Loughborough, Portland and Storrington; that part of Kingston Township north of the line between Concessions 3 and 4; that part of Pittsburgh Township north of the line between Concessions 4 and 5.
3. IN THE COUNTY OF RENFREW—The Townships of Sherwood and Jones.
4. IN THE COUNTY OF HASTINGS—The Townships of Sidney and Bangor.
5. IN THE COUNTY OF LENNOX AND ADDINGTON—The Townships of Kaladar and Anglesea.
6. IN THE COUNTY OF LEEDS—The Township of Crosby South and Burgess South.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 28th day of December, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that Section 95a of *The Public Health Act* as enacted by Section 8 of *The Public Health Amendment Act, 1938*, be made applicable to the municipalities and areas designated in the attached schedule.

The Committee further advise that this Order shall come into force on the first day of March, 1940.

Certified,

C. F. BULMER,
Clerk, Executive Council.

1. IN THE COUNTY OF ESSEX—The Townships of Maidstone, Rochester, Tilbury West, Tilbury North, Sandwich South, Colchester North, Gosfield North, that part of Gosfield South Twp. lying north of the line between Lots 3 and 4, and that part of Mersea Twp. lying north of the line between Concessions 6 and 7.
2. IN THE COUNTY OF KENT—The Townships of Camden, Howard, Orford, Tilbury East, Zone, Chatham, Dover, Harwich, Raleigh.

3. IN THE COUNTY OF LAMBTON—The Townships of Bosanquet, Brooke, Dawn, Enniskillen, Euphemia, Moore, Plympton, Sarnia, Sombra and Warwick.
4. IN THE COUNTY OF MIDDLESEX—The Townships of Adelaide, Caradoc, Delaware, Dorchester North, Ekfrid, Lobo, McGillivray, Metcalfe, Mosa, Williams East, Williams West, and that part of London Twp. north of the line between Concessions 4 and 5.
5. IN THE COUNTY OF OXFORD—The Townships of Dereham, Norwich North, Norwich South, Oxford East, Oxford North, Oxford West, that part of Nissouri East Township south of the line between Lots 10 and 11, and that part of the Township of Zorra West lying south of the line between Lots 20 and 21.
6. IN THE COUNTY OF HURON—The Township of Howick.
7. IN THE DISTRICT OF COCHRANE—The Townships of Hislop and Playfair.
8. IN THE DISTRICT OF SUDBURY—The Townships of Chapleau, Hallam, May, Salter and Foleyet.
9. IN THE DISTRICT OF NIPISSING—The Townships of Ferris East and Caldwell.
10. IN THE DISTRICT OF PARRY SOUND—The Township of Himsworth South.
11. IN THE DISTRICT OF TEMISKAMING—The Townships of Cairo and James.
12. IN THE COUNTY OF NORFOLK—The Townships of Middleton, Walsingham North, Houghton, Walsingham South, Charlotteville, Woodhouse, Windham, Townsend.
13. IN THE COUNTY OF BRANT—The Township of Brantford.
14. IN THE COUNTY OF WELLAND—The Townships of Bertie, Crowland, Humberstone, Pelham, Stamford, Thorold, Willoughby.
15. IN THE COUNTY OF LINCOLN—The Townships of Clinton, Grantham, Grimsby North, Grimsby South, Louth, Niagara.
16. IN THE COUNTY OF WENTWORTH—The Townships of Ancaster, Barton, Flamboro East, Flamboro West, Saltfleet.
17. IN THE COUNTY OF PEEL—The Townships of Albion, Toronto, Toronto Gore.
18. IN THE COUNTY OF WATERLOO—That part of the Township of Waterloo south of the Speed River, and north of the road between Concessions 5 and 6.
19. IN THE COUNTY OF RUSSELL—That part of the Township of Cambridge bounded on the north by the line between Concessions 5 and 6; on the east by the line between Lots 5 and 6 of Concessions 6, 7 and 8; on the south by the line between Concessions 8 and 9; on the west by the line between Lots 12 and 13 of Concessions 6, 7 and 8.
20. IN THE COUNTY OF GLENGARRY—That part of the Township of Charlottenburg lying south of the line between Concessions 2 and 3; and that part of the Township of Lancaster lying south of the line between Concessions 2 and 3; that part of the Township of Kenyon west of the line between Lots 30 and 31, and south of the line between Concessions 7 and 8, and north of the line between Concessions 4 and 5.
21. IN THE COUNTY OF STORMONT—That part of the Township of Roxborough east of the line between Lots 6 and 7, and south of the line between Concessions 7 and 8, and north of the line between Concessions 5 and 6.
22. IN THE COUNTY OF PRESCOTT—The Townships of Hawkesbury West and Alfred.
23. IN THE DISTRICT OF ALGOMA—The Township of Thessalon.
24. IN THE DISTRICT OF THUNDER BAY—The Townships of Nipigon and Summers.
25. IN THE DISTRICT OF KENORA—The Townships of Drayton, Vermillion, Vermillion Additional, and Van Horne.
26. IN THE COUNTY OF HALTON—The Townships of Nelson and Trafalgar.
27. IN THE COUNTY OF FRONTENAC—The areas within $1\frac{1}{2}$ miles of each of the following post offices, viz., Sharbot Lake, Parham, Tichborne, Verona, Hartington, Harrow-smith, Sydenham.
28. IN THE COUNTY OF HASTINGS—That part of Tyendinaga Township lying south of the Canadian National Railway tracks and east of the line between Lots 20 and 21 extended.

29. IN THE COUNTY OF LENNOX AND ADDINGTON—That part of the Township of Richmond south of the Canadian National Railway tracks and west of Napanee.
30. THE VILLAGES OF—Ailsa Craig, Alvinston, Arkona, Athens, Ayr, Bancroft, Belle River, Blyth, Cannington, Casselman, Cayuga, Cobden, Coldwater, Courtright, Creemore, Deloro, Drayton, Embro, Erieau, Erie Beach, Erin, Fonthill, Frankford, Glencoe, Grand Valley, Hastings, Highgate, Killaloe Station, Lanark, Lancaster, L'Original, Lucan, Marmora, Maxville, Merrickville, Mildmay, Millbrook, Norwood, Oil Springs, Omemee, Paisley, Richmond, St. Clair Beach, Streetsville, Teeswater, Thedford, Tottenham, Wardsville, Waterdown, Wyoming.
31. THE AREAS OCCUPIED BY THE FOLLOWING POLICE VILLAGES—Baden, Burford, Elm-vale, Eden Mills, Holland Landing, King City, MacTier, Manotick, North Gower, Orono, Plantagenet, Queensville, Rockwood, Schomberg, St. George, Sharon, Sunder-land, Thornhill, Waubauskene.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 9th day of November, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the Regulations respecting venereal diseases made pursuant to the *Venereal Diseases Prevention Act* and approved by the Lieutenant-Governor-in-Council on June 20th, 1918, April 16, 1920 and December 28, 1922, be amended as follows:

1. Clause (g) of the said regulations is repealed and the following substituted.
(g) REPORTING
Every medical practitioner, every hospital superintendent, superintendent of every institution under *The Mental Hospitals Act*, the head of every gaol, reformatory or other place of detention and of every institution, private, public or otherwise, shall report within 24 hours to the Department of Health of Ontario in accordance with Form VI every case of venereal disease coming under his treatment or care for the first time. If the patient has been under treatment by another physician or institution, notice thereof shall be sent forthwith to the Department, but without giving the name of the patient.
2. Form VI in the said regulations is repealed and the following substituted therefor:
(a) Form VI. V.D.

REPORT OF VENEREAL DISEASE

Name of Disease.....
Initials of Patients Date of Birth.....
Married or Single.....Sex.....
Municipality.....
Date.....

(Signed)
.....
Medical Practitioner, Supt., or Head of
Institution.

Certified,
C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 27th day of June, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the attached regulations made pursuant to the provisions of Section 3 of *The Sanatoria for Consumptives Act*, be approved.

Certified,
C. F. BULMER,
Clerk, Executive Council.

The regulations pursuant to *The Sanatoria for Consumptives Act*, approved by an Order-in-Council dated the 22nd day of June, 1938, are amended as follows:

1. Regulation number 10 is repealed and the following substituted therefor:

No person who has previously been discharged from a sanatorium on account of misdemeanor or lack of co-operation, shall be re-admitted as a patient in a sanatorium without the consent of the superintendent of the sanatorium to which such person desires admission.

2. Regulation number 25 of the said regulations is amended by adding thereto the following subsection:

(2) In the event that it is necessary for the superintendent to transfer a patient from a sanatorium to a hospital under *The Public Hospitals Act* in order that such patient may have performed upon him a surgical operation for a tuberculous condition of the lung, the Department may pay Provincial aid to the sanatorium at the rate of \$2.07½ for each day that such patient is in the public hospital, and in such event the sanatorium shall pay the public hospital \$2.35 for each day that such patient is in the public hospital, but the approval of an inspector shall be obtained before a patient is transferred under this section.

3. The said regulations are amended by adding thereto the following:

25a Out of any moneys payable to a sanatorium for Provincial aid the Department may at any time make such deductions as the director shall determine, on account of any patient who is not suffering from tuberculosis.

4. Regulation number 26 of the said regulations is amended by adding at the end thereof the following words:

"or such greater amount as an inspector may authorize upon application by the superintendent."

5. Regulation number 27 of the said regulations is amended by adding thereto the following subsection:

(2) Every sanatorium shall do everything necessary to ensure that any baby born in the sanatorium shall not contract any tuberculous or other infection.

DIVISION OF MEDICAL STATISTICS

A. HARDISTY SELLERS, B.A., M.D., D.P.H., *Director.*

The functions of this Division include the assessing of the cancer control programme and the compilation of cancer case statistics, research into the problems associated with hospitalization, the compilation of Ontario Hospital statistics, statistical service to each Division of the Department and statistical research in the public health field in general.

The Division supervises, collects, tabulates and analyses clinical and follow-up records of all patients treated in the seven Ontario cancer centres. All annual departmental summaries and any statistical analyses of cancer morbidity or mortality data are prepared. The necessary monthly and other reports on movement of patients in Ontario Hospitals, analyses of trends in population, etc., are prepared by this Division as well as the Annual Report thereon. A comprehensive study of public hospitals, begun in 1936, is shortly to be concluded.

It is in the last field mentioned (public health statistics in general), that the most important contribution can be made and the conception of this Division as a consulting service and research bureau for the Department is being encouraged. This phase is being gradually developed and with the completion of the survey of public hospitals, it is anticipated that much can be achieved. In each of the four broad fields named, research constitutes an important part of the work, analyses being conducted with clinical or administrative objectives in mind.

THE ACTIVITIES OF THE DIVISION DURING THE YEAR

The work of the Division of Medical Statistics during 1939 was associated with several new developments and with the completion of certain cancer studies and a large part of the hospital survey programme initiated in earlier years.

1. CANCER CONTROL.

The field of cancer control has been one of the fundamental responsibilities of this Division since its inception. During 1939, further work on the 30-year study of cancer deaths in Ontario was held in abeyance and the time devoted to the case studies dealt with in succeeding paragraphs.

(a) *Cancer Clinic Statistics.*

The first fruits of the new recording plan in the seven Ontario cancer centres, already discussed in earlier reports, were borne during 1939. Through an arrangement whereby a follow-up card for each patient is returned to the Department annually, a general analysis of all new cases admitted to the Centres during 1938 was made possible. The findings of this study were incorporated in a forty-page Cancer Review which was issued in June, 1939. Over 2,000 patients were covered by this Review and data on age, sex, site, place of residence in relation to place of treatment, histological diagnosis, stage of disease, etc., were all included. One full month of the time of the entire staff was devoted to the work. This study has proven of great assistance not

only to those active in the treatment field, but also to those concerned with professional and public education in respect to cancer and the publication enjoyed an excellent circulation during 1939.

While the Cancer Review for 1938 did not include any material on duration of symptoms, nature of previous treatment and other ancillary facts, all information necessary to the study of such aspects is available for analysis during 1940. It is planned that such annual reviews on cancer as the above will be issued at regular intervals, the detailed analysis of survival following treatment of necessity being deferred until 1942. The statistical report on cancer for 1939 will be found on page 191 of this Report.

All deaths occurring among patients treated for cancer in the clinics are checked against the official death certificates and in this and other ways, the Division assists the clinics and their staffs in the follow-up of any patients who for any reason cannot be contacted.

The history and examination forms introduced into the seven Cancer Centres in 1937 were revised in the light of eighteen months experience in order to better adapt them to clinical needs. In addition to those already in use, special forms were devised for gastro-intestinal cases (exclusive of oesophagus and rectum). All the new schedules have been in use for a year and have proven decidedly satisfactory. In company with revision of these schedules it was necessary to issue a new memorandum on recording and this was placed in the field in March, 1939. This document incorporates certain important new features for those concerned with the responsibility for clinic records and covers all details pertinent to procedure in clinical recording and follow-up. At least two visits were made to each Centre during the year with the object of inspecting the records, correcting any defects and clarifying any difficulties.

(b) Cancer Morbidity Studies.

During 1938, a beginning was made in respect to a study of all cancer cases treated in Ontario public hospitals during 1937. Transcription of the information from the monthly hospital returns was completed during 1939 and 12,000 records are now ready for tabulation. These data include all patients with cancer and benign tumours as well as certain non-neoplastic conditions. Preparations have been made for analysis of these data, and a report thereon will be prepared during 1940.

Attention has been drawn in earlier reports dealing with the cancer problem, to a realization of the need for information as to the number of patients who are alive with cancer during a given period. With this in mind, arrangements were completed during 1939 for a beginning to be made in Ontario by a survey of diagnosed cancer cases in the County of Middlesex. This is a joint undertaking with the Ontario Medical Association and covers the calendar year 1939. Reports are being sought on all patients with cancer (or probable cancer) seen, observed, or treated in private practice, hospital or clinic during the year. While of necessity such a survey is limited to known or diagnosed cases, this is not a serious restriction since practically nothing is known as yet concerning cancer incidence and to include other cases (suspected cancer, pre-cancer, etc.) would be undesirable for many obvious reasons. Appropriate schedules for reporting were prepared by this Division and sent late in December to all physicians and hospitals in the County by the Cancer Committee of the Ontario Medical Association. When returns are complete, this Division will undertake statistical analysis of them and prepare the formal report on the survey for publication and distribution during 1940.

During the year, the co-operation of this Division was extended to the Ontario Medical Association and to the Canadian Medical Association in setting up a plan for voluntary reporting and recording of cancer cases throughout Canada.

2. SURVEY OF PUBLIC GENERAL HOSPITALS

Begun in October, 1936, the survey of Ontario Public General Hospitals is rapidly being brought to completion. A large portion of the time of the staff was devoted to this work during 1939. The morbidity aspects of this study cover 70,000 patients. The survey is being published in four parts: I—Summary and Recommendations; II—General Statistics; III—Financial Statistics, and IV—Hospital Morbidity. Parts II and III, each 40 pages with charts and tables, have already been issued and have proven of definite administrative service to the Department. These deal with general and financial statistics during the period 1900-1938. The balance of the Report will be available early in 1940.

Arising out of this survey will come a clearer perspective of the general hospital problem in the Province and specific guidance in future policy. The information which will be included in part IV of the Report upon the Hospital Survey, namely the morbidity study, will be the first of its kind in Canada. It should add a definite contribution to our knowledge of the frequency of certain diseases requiring hospitalization as well as much basic information on the broader aspects of hospital morbidity since it deals with morbidity by cause, age, sex, duration, place of residence, etc. It includes also data on the relation between provincial aid and these factors.

Undoubtedly a national service would be effected by placing such a statistical analysis—even reduced to the barest summary—on a national basis routinely. Few countries (New Zealand is one) have data of any sort on the causes of hospital illnesses and knowledge of the frequency, duration, age and sex relationships are much needed by the profession and by public health workers. Data are now being collected nationally for mental institutions and tuberculosis sanatoria. The greater volume of sickness and costs in respect to general sickness requiring hospitalization makes data on it even more worthwhile.

A few highlights of the findings recorded in the study are presented in the following sections.

(a) *The Causes of Hospital Morbidity.*

A total of 60,743 patients were discharged from (or died in) public general hospitals during the quarter year ending December 31st, 1936, for which the detailed morbidity analysis was undertaken. Table I gives a summary of the causes of hospitalization in the group studied according to International List Classes.

TABLE I

THE CAUSES OF HOSPITAL ILLNESSES—INTERNATIONAL LIST GROUPS
DISCHARGES AND DEATHS—ADULTS AND INFANTS

DIAGNOSIS CLASS	PATIENTS		DAYS	
	Number	Per Cent.	Number	Per Cent.
1. Infectious Diseases.....	1,682	2.77	35,470	4.30
2. Cancer and Other Tumours.....	2,950	4.86	62,143	7.54
3. Rheumatic and General Diseases.....	1,699	2.80	42,612	5.17
4. Diseases of Blood and Blood Forming Organs.....	288	0.47	7,146	0.87
5. Chronic Poisonings and Intoxications	348	0.57	1,754	0.21
6. Diseases of Nervous System and Special Sense.....	2,586	4.26	49,818	6.04
7. Diseases of Circulatory System.....	2,047	3.37	57,311	6.95
8. Diseases of Respiratory System.....	3,141	5.17	40,740	4.94
9. Diseases of Digestive System*.....	15,512	25.54	138,473	16.79
10. Diseases of Genitourinary System.....	3,931	6.47	59,367	7.20
11. Pregnancy and Childbirth.....	9,009	14.83	97,771	11.86
12. Diseases of Skin and Cellular Tissue..	1,223	2.01	15,755	1.91
13. Diseases of Bones and Organs of Movement.....	800	1.32	19,602	2.38
14. Congenital Malformations.....	255	0.42	5,180	0.63
15. Diseases and Conditions of Early Infancy†.....	6,973	11.48	81,122	9.84
16. Senility, Old Age.....	65	0.11	5,495	0.67
17. Injuries and Accidents.....	6,072	10.00	86,301	10.47
18. Miscellaneous‡.....	1,603	2.64	11,498	1.39
19. Ill-Defined Causes.....	559	0.92	6,965	0.84
ALL CASES.....	60,743	100.00	824,525	100.00

*Including diseases of tonsils and adenoids.
†Includes newborn infants.
‡For diagnosis or examination only, not diagnosed or no diagnosis available.

Diseases of the digestive system lead in frequency and days of care with pregnancy and childbearing second. The former includes diseases of tonsils and adenoids (6,983 cases), but even if these are eliminated, only pregnancy and childbearing would exceed it in frequency—it would still rank first in days of care. Accidents and injuries were responsible for 10 per cent. of the cases and days of care among cases terminated during the survey period.

A simple picture of a great part of the total hospitalization and at the same time more specific information as to the diseases and conditions mainly responsible for people seeking hospital care are given by a table of the chief causes of hospitalization. In Table II are given data on the frequency and days of care for the twenty-three causes which led in these two respects during the period studied. Discharges and deaths for adults and infants are included. These cause are arranged in order of frequency and the rank in terms of days of care is shown in comparison. Selection of individual items in the list presented here depended upon the general nature of the various conditions, rather than upon etiology or specificity in clinical terms.

TABLE II
THE CHIEF CAUSES OF ILLNESS AND DAYS OF HOSPITAL CARE
DISCHARGES AND DEATHS—ADULTS AND INFANTS

DIAGNOSIS	FREQUENCY			DAYS OF CARE		
	Rank	No. Patients	Per Cent.	Rank	No. Days	Per Cent.
Diseases of Tonsils and Adenoids	1	6,983	11.5	13	12,674	1.5
Deliveries, Uncomplicated.....	2	6,857	11.3	1	79,794	9.7
Newborn Infants.....	3	6,741	11.1	2	76,065	9.2
Appendicitis.....	4	4,223	7.0	3	55,561	6.7
Fractures.....	5	2,493	4.1	4	51,563	6.3
Wounds.....	6	1,754	2.9	10	13,420	1.6
Cancer (all forms).....	7	1,608	2.6	5	42,339	5.1
Diseases of Heart and Arteries.....	8	1,369	2.3	6	41,754	5.1
Abortion.....	9	1,167	1.9	17	9,467	1.1
Pneumonia and Bronchitis.....	10	1,137	1.9	7	22,719	2.8
Hernia.....	11	861	1.4	8	15,737	1.9
Cellulitis, Abscess.....	12	715	1.2	22	8,346	1.0
Cholecystitis and Cholelithiasis.....	13	688	1.1	14	12,504	1.5
Diarrhoea and Enteritis.....	14	607	1.0	19	9,269	1.1
Diabetes.....	15	556	0.9	12	12,950	1.6
Diseases of Thyroid Gland.....	16	540	0.9	16	10,230	1.2
Functional Nervous Diseases.....	17	455	0.7	11	13,337	1.6
Arthritis (chronic).....	18	405	0.7	9	14,059	1.7
Tuberculosis (all forms).....	19	379	0.6	15	11,945	1.4
Venereal Diseases.....	20	337	0.6	20	9,164	1.1
Cerebral Haemorrhage*.....	21	336	0.6	18	9,340	1.1
Diseases of Prostrate.....	22	279	0.5	21	8,594	1.0
Osteomyelitis.....	23	211	0.3	23	7,551	0.9
TOTAL—Specified Causes.....		40,701	67.0		548,382	66.5
GRAND TOTAL—ALL CAUSES.....		60,743	100.0		824,525	100.0

*Includes cerebral embolism and thrombosis.

It is remarkable that 67 per cent. of all completed cases and 66.5 per cent. of all days of care should be included within such a relatively small diagnostic compass. The volume of appendicitis cases is striking—4,223 in *three* months. It alone was responsible for more cases than cancer, pneumonia, diarrhoea and enteritis, and diabetes combined and more days of care than pneumonia, diarrhoea and enteritis, diabetes and abortion together. The significant frequency of abortion is noteworthy—the figures indicate over 4,000 abortions hospitalized per year.

The staggering morbidity due to accidents is further emphasized by the position of fractures and wounds in the list of chief causes. Arthritis and diabetes show a degree of importance, in terms of hospitalization, out of proportion to their frequency.

It will be observed that pregnancy and childbearing, appendicitis, fractures, wounds and cancer, along with diseases of the heart and arteries and pneumonia, together account for almost *half of all* cases and days of care.

(b) *Hospital Morbidity by Age and Sex.*

The literature contains a great deal of information on the relation of age and sex to general sickness and accidents. Little or no Canadian data for *hospital* cases are on record. From the Ontario study of public hospital discharges, some illustrative data are available. The male population contributed

25,813 patients or 42.6 per cent. of the total cases and 370,918 days of care or 45.2 per cent. of the total during the period. The excess among females is largely accounted for by hospitalization due to pregnancy and childbearing which alone contributed 15 per cent. of *all* hospitalized cases and 12 per cent. of *all* days of care, and in females 26 per cent. of the cases and 21 per cent. of the days of care.

Table III gives the variations in frequency, duration and average stay by age and sex in the 60,743 completed cases studied.

TABLE III.

HOSPITAL MORBIDITY BY AGE AND SEX—FREQUENCY AND DURATION
DISCHARGES AND DEATHS—PUBLIC GENERAL HOSPITALS

AGE IN YEARS	FREQUENCY*		DURATION*		DAYS PER PATIENT	
	Male	Female	Male	Female	Male	Female
Newborn.....	420	431	4,760	4,856	11.3	11.3
Under 1.....	94	74	1,740	1,224	18.5	16.5
1- 9.....	42	36	388	308	9.2	8.5
10-19.....	33	46	392	480	12.0	10.5
20-29.....	51	130	556	1,420	10.9	10.9
30-39.....	48	95	644	1,144	13.5	12.1
40-49.....	46	58	720	960	15.7	16.4
50-59.....	52	56	947	992	18.1	17.6
60-69.....	60	57	1,492	1,308	25.0	22.9
70-79.....	74	59	1,976	1,284	26.8	23.4
80+.....	83	55	2,296	1,896	27.6	34.6
ALL AGES.....	55	77	788	1,000	14.4	13.0
	66		892		13.5	
ADULTS ONLY.....	48	71	720	936	14.8	13.1
	60		824		13.8	

*Annual rates per 1,000 estimated population by sex at ages and per 1,000 live births.

The chief points to be observed in respect to relative frequencies by age and sex are:

1. Lowest frequencies at ages 1-9 years in females and at 10-19 years in males.
2. Steadily increasing frequency with increasing age in males beyond 40 years not observed in the female group.
3. Maximum frequency in females at the childbearing ages.
4. Forty per cent. higher frequency in females all ages over that for all males.
5. Male excess at ages 1-9 years and 60 years and over with a female excess at the intervening ages, most marked during the childbearing period when the ratio of female to male cases is as much as two and a half to one.

The days of care expressed per 1,000 population of each sex and age, correspond closely to the relationships observed for frequency of cases. The volume of care increasing steadily with age (after the first year) among males. Among females there is also an increase with age, a trend obscured only by the hospitalization associated with pregnancy and childbearing at ages 15-49

years. These data confirm the fact that hospitalization among females exceeds that among males at ages 20-49 years and that the burden of hospital care among the general population increases as age advances.

To ascertain the influence of childbearing and diseases and conditions associated with it, on the female incidence and duration, the cases and days for all puerperal causes were deducted from the totals in the age groups 10-49 years. The figures thus corrected are given in Table IV.

TABLE IV.
FEMALE HOSPITAL MORBIDITY—NON-PUERPERAL CAUSES
DISCHARGES AND DEATHS—AGES 10-49 YEARS

AGE IN YEARS	PATIENTS		DAYS		Days per Patient
	Number	Rate*	Number	Rate*	
10-19.....	3,175	38	33,273	396	10.5
20-29.....	3,536	48	49,765	680	14.0
30-39.....	3,436	52	44,293	676	12.9
40-49.....	2,891	51	49,396	876	17.0

*Annual rates per 1,000 estimated female population at ages.

These data are more in line with the male figures in Table III, though *all* the female excess at childbearing ages is not eliminated. It is obvious, however, that almost all of such female excesses are due to or associated with conditions or diseases of pregnancy, childbearing, and the puerperal state.

Tables III and IV show that not only do case frequency and volume of care increase but the length of stay in hospital also increases with age. It is necessary to emphasize the importance of variation in types of illness at ages on such data. The large volume of short stay cases in the younger groups (diseases of tonsils and adenoids, etc.), has an important bearing on the findings. Such things are, of course, the factors inherent in the age-health relationship. From age 20-29 on, there is a steady increase in the average stay per completed case (i.e., discharges and deaths). The average stay of the male cases is equal to or greater than that for females in all but three age groups—20-29 years, 40-49 years and 80 years and over. These age and sex relationships present a remarkably regular trend despite the broad age bands employed.

Application of these data on incidence or frequency should be made with the limitations attaching thereto by reason of the short period covered, clearly in mind.

(c) *A Hospital Morbidity Code for General Use.*

Considerable work has been done, particularly in the United States, toward the development of a classified list of diagnosis which might be used in the tabulation of data collected in various morbidity surveys. The Dominion Council of Health in 1937 appointed a Special Committee on a National Morbidity Code to look into this whole question and to prepare a report. In the hospital survey now being completed by this Division, and which covered over 70,000 patients, a detailed list of 1,300 diagnoses was employed in classifying the cases by cause. From this and on the basis of experience in its use a preliminary draft of a proposed classified list for hospital use was prepared in 1937. This list contained 474 items and formed the basis of the short list for national use in general morbidity tabulation (containing 331

items) which was prepared for the Dominion Council of Health by its Special Committee, of which the Director is Secretary. This list and the report pertaining thereto were both endorsed by the Council in 1938.

It is now planned to meet the needs of Ontario Public General Hospitals particularly, by preparing a short list adaptable to hospital needs and containing not more than 500 rubrics. This list will be elaborated during 1940, and will be analagous to the National List, deviation from it being only *in detail* and not in the order or content of the major titles or classes. Other corresponding efforts are those of Dr. Joseph Berkson, of the Mayo Clinic, and the recently published classified list of the Welfare Council of New York based on the discharges from hospitals in New York City during 1935.

III. ONTARIO MENTAL HOSPITALS

The existing statistical machinery in Ontario Hospitals is such that each institution submits to the central Department (a) a monthly statement indicating the movement of patient population during the month, and (b) a complete annual statistical report (30 tables). These two sources of information, together with reports of admissions, discharges, probations, transfers, deaths, laboratory work, dental services, and accidents, provide the raw data necessary for administrative and research needs.

(a) *Recording and Tabulation.*

During 1939, the annual report forms used in all Ontario Hospitals were revised and extended in order to provide for additional information on discharges and deaths. These latter are now both sub-classified into first and re-admissions. Many other changes were introduced, modifying previous practice on the basis of clinical and administrative experience.

In keeping with this revision of the annual report forms, a memorandum on the use of these schedules was prepared with a view to facilitating their use and assuring the accuracy and uniformity of the compilations in each institution. The memorandum incorporates definitions of the terms used in the annual report forms and is prepared specifically for Ontario needs, supplementing in this way the manual issued by the National Committee for Mental Hygiene.

The admission, discharge and transfer cards in use in Ontario Hospitals, have also been revised during the year, making them more convenient in form and arrangement. The order of presentation of facts on the cards is similar to that followed in the statistical face sheet of the various hospital forms. The new arrangement has been found by hospital staffs and by the Dominion Bureau of Statistics to be most advantageous.

(b) *Reports and Analyses.*

The preparation of special monthly reports on the movement of population, accidents, bed occupancy, etc., in each institution is a responsibility of this Division together with other supplementary periodic analyses of admissions, discharges and population trends which are of administrative interest.

The first bulletin on Ontario Hospital Statistics was issued on March 16, 1939, and dealt with the trend in patient population in each Ontario hospital during the past twenty-five years. A second bulletin on population movement during the calendar year 1939 was also prepared, indicating the necessary adjustments brought about since August.

In June, a special study was made of all patients with general paresis or cerebral syphilis in Ontario Hospitals. Reports were collected on 500 patients. The principal findings of the analysis conducted by this Division were prepared for presentation and publication.

In the seventy-first annual report for Ontario hospitals covering the fiscal year ending March 31, 1938, and prepared by this Division during 1939, discharge rates by diagnosis and hospital were presented for the first time. These rates were expressed per 100 admissions and per 1,000 patients under treatment. Similar tables were also incorporated for deaths and discharge rates were also computed, by the condition on discharge for selected psychoses.

Tabulation and analysis of mental health clinic records, now a function of this Division, continue to be compiled on the original basis. There are over 3,000 such reports each year and a new plan of tabulation is in process of evolution in order to extend the scope of possible usefulness of the data collected.

A special Departmental alphabetic index was prepared in November of this year covering all males who, in September, 1939, were between the ages of 16 and 44 years and who at one time had been in an Ontario Hospital or been examined by a mental health clinic operated by the Department. This index contains the full name of each person, the name of the hospital or clinic, age or date of birth, place of birth and date examined or discharged. Machinery is in effect for keeping the Index up to date by adding current discharges, probationers and new clinic cases.

IV. GENERAL STATISTICS

The favourable response which attended the preparation by this Division in 1938 of a commentary on the leading causes of death by age, led to the issuing in December, 1939, of a similar review dealing with mortality in the Province during 1938. This review was distributed among others to 150 health officers in the larger towns and cities throughout the province. It is also being used in the preparation of material for health teaching distributed to teachers and nurses throughout the Province. This data is appended to this report.

During 1938, the maternal and infant death rates, as well as the mortality from tuberculosis, were the lowest recorded in the Province to date. In respect to the first of these three, a review of experience during the six years 1933 to 1938 was completed and a survey of infant mortality in the Province from 1909 to 1938 begun in 1938 was continued.

In connection with public health administration in the Province, this Division has undertaken during 1940 to tabulate and analyze the annual reports of over 700 municipal health officers. This analysis will be concerned more particularly with the costs of public health administration and with the development of health indices for local use.

A growing volume of statistical work continues to be done by this office in co-operation with other Divisions and requests for information or for direction in tabulation and analysis come from every Division in the Department. The scores of requests for the information or assistance which were received during the year from within as well as outside the Department in respect to a wide variety of subjects including the preparation of statistical diagrams and maps, are indicative of the service available and rendered. In this sense the Division's activities are of a co-ordinating character and the time spent in this way is most effective in assuring the best approach to a problem or the securing of the

maximum out of any available data. Facilities are available for the preparation of data on all phases of mortality and a constant effort is made to be assured of having on hand all new statistical data in the health field.

The Division assisted during the year in the preparation of two exhibits—one on Communicable Disease Reporting for the annual meeting of the Ontario Health Officers Association and the Ontario Medical Association in June, and one on Hospitals and Departmental Services to Physicians for the sessions of the American Hospital Association in September.

The activities of the Division of Medical Statistics are thus divisible into (a) routine tabulation and analyses; (b) special statistical work arising in connection with administrative problems, including supervision of cancer recording in the seven cancer centres, and (c) statistical research. With the completion of the public hospital survey in 1940, extension of activities in the general field of public health administration and epidemiology will be possible. Many statistical studies are awaiting prosecution—a 5 year study of maternal and infant deaths and stillbirths in Ontario, a study of venereal disease morbidity, the preparation of a manual on Health Statistics for Ontario—a complete review of mortality and morbidity from 1900 to date, etc. Many of these projects will be begun or completed during 1940.

PUBLICATIONS DURING THE YEAR

1. Pneumonia in Ontario, a 25-year review of mortality—Canad. Pub. Health J. 30; 73, 1939.
2. The New United States Registration Certificates, Canad. Pub. Health J. 30; 111, 1939.
3. The Classification of Joint Causes of Death, Canad. Pub. Health J. 30; 112, 1939.
4. A Study of 456 Diabetes Deaths (collaborator)—Canad. Pub. Health J. 30; 435, 1939.
5. Experience of V. O. N. with Cases of Pregnancy (collaborator)—Am. J. Pub. Health, 29; 248, 1939.
6. Cancer Review, 1938—Analysis of New Clinic Cases.
7. Hospital Survey, Part II—General Statistics 1900-1938.
8. Hospital Survey, Part III—Financial Statistics, 1900-1938.
9. Special Memoranda on Cancer Recording and Mental Hospital Recording.
10. Review of Mortality in Ontario, 1938, by age groups.
11. The Contribution of the Ontario Cancer Centres to the Control of Cancer—In the press.

THE CHIEF CAUSES OF DEATH IN ONTARIO DURING 1938

Based on official recorded mortality data for 1938, two tables are presented indicating the principal causes of death at various ages in order to draw attention to the more important features of mortality experience during the year. The various statistics for the Province as a whole may serve as *rough* yardsticks against which local health progress can be gauged.

The crude death rate for 1938 was 9.89 per 1,000 population, or 5 per cent. below that for 1937. This decrease was due in large measure to the decline in deaths attributed to influenza.

In Table V are presented the twenty chief causes of death at all ages. For each "cause" the number of deaths recorded, the specific death rate per 100,000 population and the per cent. of all deaths due to the specified cause are shown. These twenty causes or groups of closely associated clinical entities together contributed 31,134 deaths or 84.4 per cent. of the 36,890 deaths during the year.

TABLE V.
CHIEF CAUSES OF DEATH—ALL AGES
ONTARIO—1938

Rank	CAUSE OF DEATH	Int'l. List Numbers	Number of Deaths	Specific Death Rate*	Per Cent. of Total Deaths
1.	Diseases of the heart.....	90-95	7,354	197.1	19.9
2.	Cancer (all forms).....	45-53	4,472	119.9	12.1
3.	Diseases of the arteries.....	96-99	4,083	109.4	11.1
4.	Pneumonia and bronchitis.	106-109	2,583	69.2	7.0
5.	Accidental Causes.....	176-195	2,347	62.9	6.4
6.	Nephritis.....	130-132	1,900	50.9	5.2
7.	Tuberculosis (all forms)	23-32	1,237	33.1	3.4
8.	Prematurity.....	159	1,010	27.1	2.7
9.	Cerebral haemorrhage embolism and thrombosis..	82	790	21.2	2.1
10.	Idiopathic abnormalities of blood pressure.....	102	774	20.7	2.1
11.	Influenza.....	11	618	16.6	1.7
12.	Diabetes mellitus.....	59	584	15.7	1.6
13.	Diarrhoea, enteritis and dysentery.....	13, 119 & 120	544	14.6	1.5
14.	Congenital malformations	157	499	13.4	1.4
15.	Diseases of the prostate.....	137	493	13.2	1.3
16.	Senility.....	162	475	12.7	1.2
17.	Hernia, intestinal obstruction.....	122	386	10.3	1.0
18.	Suicide.....	163-171	360	9.6	1.0
19.	Appendicitis.....	121	330	8.8	0.9
20.	Ulcer of stomach and duodenum.....	117	295	8.3	0.8
Total.....			31,134	8.35†	84.4
All other causes.....			5,756	1.54†	15.6
GRAND TOTAL.....			36,890	9.89†	100.0

*Rates per 100,000 population.
†Rates per 1,000 population.
Population of Ontario 1938 (estimated) 3,731,000.

Diseases of the heart, arteries and kidneys contributed 36.2 per cent. of all deaths, most of which occurred at ages over 70 years. The phenomenal increase in recorded deaths from these causes in the last twenty years is largely, if not entirely, unreal. Older age structure of the population, transfer of many deaths from senility and ill-defined causes and more detailed certification all having contributed to the *apparent* increase.

Cancer was recorded as the cause of 4,472 deaths or 12.1 per cent. of the total, the crude death rate being slightly lower than the peak reached in 1937. One-third of all cancer deaths occur at ages under 60 years and 60 per cent. under 70 years. In this connection it is noteworthy that over 2,000 new cancer cases are being treated each year in the seven Ontario Cancer Centres. Most of these cases are cancers of the so-called accessible sites (breast, cervix uteri, oral cavity and skin). Much can be accomplished especially in cancer of certain sites if diagnosis and established methods of treatment are effected promptly.

Respiratory disease mortality showed a substantial decline in 1938 due to the marked drop in recorded deaths from influenza. In 1937, there were 1,659 deaths from influenza and 13,330 reported cases, while in 1938 there were only 618 deaths and 943 cases reported. Pneumonia must be regarded as an important problem *at all* ages. It ranks first with accidental cases at ages 1-4 years and second only to accidents at ages 5-14 years.

Accidents continue to be a leading cause of death. This is so not only in the volume of deaths thereto attributed but in the prominent part which deaths in this category (accidental burns, drowning and motor accidents, etc.), play at ages under 50 years. From the first year of life to age 50 years—accidents rank first as the chief cause of death—exceeding all other causes by a substantial margin. Increasing interest is being taken in this field by public health groups and a recognition of the importance of the problem is fundamental.

Tuberculosis mortality reached a new low point in 1938 with 1,237 deaths—a rate of 33.1 per 100,000 population. An appreciable decline was registered at ages 20-49 years and this is of special interest. The tuberculosis death rate is now but one-fifth of what it was at the beginning of the century. Despite this remarkable development, four-fifths of the deaths from tuberculosis which occurred in 1938 were at ages under 60 years, and over one-half were at ages 20-49 years. These facts mark tuberculosis as still a public health problem of first importance.

Prematurity was recorded as the cause of 1,010 infant deaths during the year. This is one-third of all deaths under 1 year of age. The direction of attention to the underlying causes responsible for premature birth is the only way in which a material reduction may be brought about, though certainly prompt care of the premature infant by modern techniques has and will continue to offer much.

Diabetes ranks twelfth in the list of chief causes shown in Table I with 584 deaths. More than 85 per cent. of these deaths were among persons over 50 years of age and three quarters at ages 60 and over. Attention has recently been directed to this trend and to the influence of present statistical practice upon recorded deaths from diabetes (Canad. Pub. Health J. 30; 435, 1939).

Diarrhoea, enteritis and dysentery were responsible for 544 deaths, of which over 60 per cent. were at ages under 2 years. Marked improvement has been recorded in such mortality in the last fifteen years, reflecting undoubtedly progressive general public health measures and increasing interest in infant hygiene.

Appendicitis caused fewer deaths in 1938 than in the two previous years. Of the 330 deaths attributed to this cause, however, 60 per cent. were at ages under 50 years and 33 per cent. at ages under 20 years. As a cause of sickness too, appendicitis is of great importance especially at ages under 40 years, many thousands of persons at these ages being hospitalized each year with acute or chronic attacks of the disease.

CHIEF CAUSES OF DEATH BY AGE GROUPS

In Table VI are presented the eight chief causes of death in each of a series of age groups—infancy, pre-school and school life, adolescence, and the age periods 20-49 years, 50-59, 60-69 and 70 years and over. Four columns of figures are given in each table—the number of deaths from each specified cause in the age group concerned, the percentage of the deaths which were due to that cause, the number of deaths from the specified cause at all ages, and the per cent. of all deaths from the specified cause which occurred at the specified age.

Infancy—Infant mortality (deaths under one year per 1,000 live births) declined to a new low in Ontario history during 1938, at 49.6 per 1,000 live births. This is a reduction of almost 10 per cent. below the level for the two preceding years. Leading causes remained unchanged—prematurity, malformations, and other diseases peculiar to early infancy making up two-thirds of all deaths in the first year of life. Pneumonia and diarrhoea and enteritis ranked third and fourth respectively and these two groups of preventable deaths comprised 20 per cent. of all infant deaths.

The Pre-School Age Group—Pneumonia and accidents each contributed one-fifth of all deaths at these ages. Five of the chief causes of death at ages 1-4 years are of a preventable nature. Accidents (principally drowning, motor accidents and accidental burns), pneumonia and influenza, diarrhoea and enteritis, tuberculosis and whooping cough together were responsible for 59.1 per cent. of all deaths in the pre-school group.

School Ages—Accidents, pneumonia, appendicitis, tuberculosis and acute rheumatic fever in that order, lead the list of chief causes of deaths at ages 5-14 years. The toll of accidents at these ages is striking. It is equal to the deaths from pneumonia, appendicitis, tuberculosis and acute rheumatic fever combined. One-sixth of all deaths from appendicitis during 1938 occurred at these ages.

Adolescence—In this age group two causes stand out prominently. These are accidents and tuberculosis (all forms). To accidents, again first at these ages, were attributed as many deaths as to tuberculosis, appendicitis, and pneumonia combined. Deaths from accidents have risen substantially at these ages since 1936 when only 79 deaths were so classified. In 1936, tuberculosis ranked first with 93 deaths—now accidents rank first and tuberculosis second. Other causes in order of prominence were appendicitis, pneumonia, and acute rheumatic fever.

Ages 20-49 Years—Tuberculosis was displaced for the first time in 1938 as second among the chief causes of death at these ages, by diseases of the heart. The improvement in tuberculosis mortality and the volume of heart disease deaths, even at these ages, command interest. Of all tuberculosis deaths, 54 per cent. fell in this age group and 68 per cent. at all ages under 50 years. Cancer, too often regarded as a disease of later life, was responsible for 12.1 per cent. of the deaths in this age group. Of these deaths, 60 per cent. were in females, and cancer of the breast (106), uterus (93) and digestive tract (246) contributed the major portion.

Ages 50 and Over—In the age groups 50 and over, diseases of the heart, arteries and cancer, assume greater prominence. At ages 50-59 and 60-69 years, one-quarter of all deaths were classed to diseases of the heart and one-fifth to cancer. Further details regarding these age groups can be obtained from the appropriate sections of Table VI.

This resume of the highlights is designed merely to give a general view of Ontario's mortality experience and may be supplemented by data available directly from the tables, or in the Registrar-General's detailed report for 1938. The eight chief causes shown for each age group make up at least three-fifths of all deaths and it may be assumed, therefore, that the principal facts of the mortality picture are covered.

Chief among the noteworthy developments during 1938, therefore, were:

- (a) A new low in the tuberculosis death rate—33.1 per 100,000 population.
- (b) A new low in the infant mortality rate—at 49.6 per 1,000 live births.
- (c) A new low maternal death rate—3.8 per 1,000 live births.

Progressive health programmes may reasonably be presumed to have been a major factor in these favourable developments. A fuller assessment of the improvement in maternal mortality must await further experience in succeeding years.

TABLE VI.
CHIEF CAUSES OF DEATH—CERTAIN AGE GROUPS
ONTARIO, 1938

CAUSE OF DEATH	Deaths in Age Group	Percent. of Deaths in Age Group Due to Specified Cause	Deaths Due to Specified Cause at All Ages	Percent. of Deaths Due to Specified Cause in Age Group
Age—Under 1 year	3,245	.....	.....	.....
1. Prematurity.....	1,010	31.1	1,010	100.0
2. Congenital malformations.....	446	13.7	499	89.4
3. Pneumonia and bronchitis.....	392	12.1	2,583	15.2
4. Diarrhoea, enteritis and dysentery.....	292	9.0	544	53.7
5. Injury at birth.....	289	8.9	289	100.0
6. Dis. pec. to early infancy*.....	215	6.6	215	100.0
7. Congenital debility.....	111	3.4	111	100.0
8. Influenza.....	65	2.0	618	10.5
TOTALS FOR 1-8.....	2,820	86.9	5,869	48.0
Ages—1-4 years.....	728	.....	.....	.....
1. Pneumonia and bronchitis.....	142	19.5	2,583	5.5
2. Accidental causes	142	19.5	2,347	6.1
3. Diarrhoea, enteritis and dysentery.....	52	7.1	544	9.6
4. Tuberculosis (all forms).....	42	5.8	1,237	3.4
5. Congenital malformations.....	29	4.0	499	5.8
6. Influenza.....	28	3.8	618	4.5
7. Whooping cough.....	25	3.4	88	28.4
8. Appendicitis.....	19	2.6	330	5.8
TOTALS FOR 1-8.....	479	65.8	8,246	5.8
Ages—5-14 years.....	714	.....	.....	.....
1. Accidental causes	199	28.0	2,347	8.5
2. Pneumonia and bronchitis.....	63	8.8	2,583	2.4
3. Appendicitis.....	53	7.4	330	16.1
4. Tuberculosis (all forms).....	53	7.4	1,237	4.3
5. Acute rheumatic fever.....	30	4.2	165	18.2
6. Cancer (all forms).....	22	3.1	4,472	0.5
7. Diseases of heart.....	20	2.8	7,354	0.3
8. Nephritis.....	19	2.7	1,900	1.0
TOTALS FOR 1-8.....	459	64.3	20,388	2.3
Ages—15-19 years.....	491	.....	.....	.....
1. Accidents.....	132	26.9	2,347	5.6
2. Tuberculosis (all forms).....	76	15.5	1,237	6.1
3. Appendicitis.....	33	6.7	330	10.0
4. Pneumonia and bronchitis.....	25	5.1	2,583	1.0
5. Acute rheumatic fever.....	20	4.1	165	12.1
6. Puerperal state.....	18	3.7	251	7.2
7. Nephritis.....	18	3.7	1,900	0.9
8. Diseases of the heart.....	17	3.5	7,354	0.2
TOTALS FOR 1-8.....	339	69.0	16,167	2.1

*Under 3 months of age.

TABLE VI—Continued

CHIEF CAUSES OF DEATH—CERTAIN AGE GROUPS
ONTARIO, 1938

CAUSE OF DEATH	Deaths in Age Group	Percent. of Deaths in Age Group Due to Specified Cause	Deaths Due to Specified Cause at All Ages	Percent. of Deaths Due to Specified Cause in Age Group
Ages 20-49 years.....	5,514	.....	.....	.....
1. Accidental causes.....	697	12.6	2,347	29.7
2. Diseases of the heart.....	687	12.5	7,354	9.3
3. Tuberculosis (all forms).....	670	12.2	1,237	54.2
4. Cancer (all forms).....	667	12.1	4,472	14.9
5. Pneumonia and bronchitis.....	358	6.5	2,583	13.9
6. Nephritis.....	242	4.4	1,900	12.7
7. Puerperal state.....	232	4.2	251	92.4
8. Appendicitis.....	104	1.9	330	31.5
TOTALS FOR 1-8.....	3,657	66.3	20,474	17.9
Ages—50-59 years.....	4,333	.....	.....	.....
1. Diseases of the heart.....	1,075	24.8	7,354	14.6
2. Cancer (all forms).....	845	19.5	4,472	18.9
3. Diseases of the arteries.....	248	5.7	4,083	6.1
4. Pneumonia and bronchitis.....	239	5.5	2,583	9.3
5. Accidental causes.....	232	5.4	2,347	9.9
6. Nephritis.....	232	5.4	1,900	12.2
7. Tuberculosis (all forms).....	160	3.7	1,237	12.9
8. Abnormalities of blood pressure.....	136	3.1	774	17.6
TOTALS FOR 1-8.....	3,167	73.1	24,750	12.8
Ages—60-69 years.....	6,462	.....	.....	.....
1. Diseases of the heart.....	1,702	26.3	7,354	23.1
2. Cancer (all forms).....	1,181	18.3	4,472	26.4
3. Diseases of the arteries.....	717	11.1	4,083	17.6
4. Pneumonia and bronchitis.....	369	5.7	2,583	14.3
5. Nephritis.....	339	5.2	1,900	17.8
6. Accidental causes.....	236	3.7	2,347	10.1
7. Abnormalities of blood pressure.....	208	3.2	774	26.9
8. Diabetes.....	171	2.6	584	29.3
TOTALS FOR 1-8.....	4,923	76.2	24,097	20.4
Ages 70 and over.....	15,381	.....	.....	.....
1. Diseases of the heart.....	3,829	24.9	7,354	52.1
2. Diseases of the arteries.....	3,052	19.8	4,083	74.7
3. Cancer (all forms).....	1,735	11.3	4,472	38.8
4. Nephritis.....	1,038	6.7	1,900	54.6
5. Pneumonia and bronchitis.....	994	6.5	2,583	38.5
6. Accidental causes.....	647	4.2	2,347	27.6
7. Cerebral haem. emb. and thrombosis..	496	3.2	790	62.8
8. Senility.....	475	3.1	475	100.0
TOTALS FOR 1-8.....	12,266	79.7	24,004	51.1

LIBRARY

FREDRITA HENLEY WRIGHT, *Librarian.*

During the year under review, the Central Library continued its policy of co-operation. Requisitions for bound books and journals, as handled through the Central Library, included those for the use of the fourteen mental hospitals and five of the branch laboratories. All technical books purchased for the Hospital Libraries were received in the Central Library and catalogued in the central catalogue of hospital books. Duplicate library cards for the individual hospital catalogues were forwarded to the hospital, together with each book purchased. In this way each hospital catalogue is kept up to date; and all books are available to the staff of each hospital through the Central Library.

Bibliographies were prepared and forwarded to staff members, while requests for reference material accounted for an increasingly large part of the daily routine. The clipping service was continued whereby three Toronto daily papers were read and items of departmental interest clipped for distribution to the various divisions. The loan service of books, journals and pamphlets was utilized to a greater extent than in any previous year.

ACCESSIONS

During 1939 the following accessions were made:

CENTRAL LIBRARY

Books purchased.....	88
Journals.....	152 vols.
Reports.....	104
Pamphlets.....	1,213
Total.....	1,557

Subscriptions to journals for the year numbered 106; while the Library received 20 complimentary subscriptions; a total of 126.

ONTARIO HOSPITALS

Books purchased	
Medical	71
Fiction	
New.....	
Library discards.....	1,150
Journal subscriptions.....	121
Year Books.....	10
Periodicals	
New (subscriptions)	147
Unsold (copies)	8,676
Newspapers (subscriptions).....	142
Total.....	10,317

LOAN SERVICE

There were 5,055 loans made by the Central Library in 1939, an increase of 108 over the previous year when the loans reached a total of 4,947. Within the immediate Department requests for loans were met to the number of 3,535. To the outside service the Central Library dispatched 1,520 references, which figure represents an increase of 436 over the previous year. This item is most

gratifying as it indicates the importance and increased demand for the loan service from the Central Library as a medium for staff education. Physicians, Nurses, Occupational Therapists, Dietitians and Social Workers connected with hospital administration and mental health clinics have all been represented in the group seeking help along professional and technical lines.

Loan service during 1939 included also the directors and staffs of the Branch laboratories of the Department.

CIRCULATION OF JOURNALS

During 1939 there was maintained the regular monthly service whereby journals on tuberculosis were circulated to the clinicians in charge of the Provincial Travelling Chest Clinics at North Bay, Belleville, Ottawa and Timmins. In this service was also included the Tuberculosis Unit at New Toronto, recently moved to the Ontario Hospital at Woodstock.

To the seven Ontario Hospitals doing special work on schizophrenia the Central Library has given special service. This has been accomplished through the circulation, immediately upon receipt in the library, of all articles dealing with metrazol and cardiazol in the treatment of this condition. In addition to the above group the Ontario Hospital at St. Thomas also received this service during the time it was in operation. The service ceased with the transfer of the hospital in October.

Journals dealing with medicine and various fields of public health were also circulated to the officer in charge of public health administration for the north-western section of the Province and located at Fort William.

The Branch Laboratories at North Bay, Fort William, Sault Ste. Marie, Peterboro and Ottawa also received a regular service, while the nursing staff of the Eastern Ontario Health Unit received "Public Health Nursing" and "Parents" each month.

A new item of importance in the circulation service during 1939 was the inclusion of the Ensol Laboratory at Kingston, to which institution scientific and medical journals in the field of cancer research are now forwarded regularly.

LIBRARY BULLETIN

The number of copies of the "Library Bulletin" distributed each month reached a total of 225 during 1939. This bibliography was prepared monthly. It kept the departmental and hospital staffs informed on current literature having a bearing on their specific work; it carried reviews of texts and references as published; and it listed recent accessions to the library.

Publication of the Bulletin was discontinued with the September issue.

PATIENTS' LIBRARIES

The Central Library purchased a total of 1,150 library discards to be added to the patients' libraries in the Ontario Hospitals. This included 500 books for the setting up of the new library at the Ontario Hospital at St. Thomas. The books purchased for St. Thomas were later transferred to form a library for the Tuberculosis Unit at the Ontario Hospital, Woodstock.

Through special terms of purchase with a Toronto News Agency, 8,676 unsold periodicals were delivered to the various hospitals. In addition, the patients were sent 2,650 newspapers. These were donated to the patients through the kindness of Toronto publishers who delivered them to the Central Library where they were apportioned and re-shipped to the hospitals.

ONTARIO HEALTH OFFICERS' ASSOCIATION

At the 1939 Conference of the Ontario Health Officers' Association which was held this year in Toronto and in conjunction with the Canadian Public Health Association, the Central Library again took the responsibility for a Library Unit. This functioned during the entire Conference. A sample set of the publications of the Department was assembled and pasted in a large scrap-book. The selection included all legislation and forms prescribed for use by local health officers. Requests for literature were accepted at the booth. A total of 7,650 pieces of material were handled in the filling of these orders which were sent out from head office following the conference. A comprehensive collection of bound books and current journals made the display a most interesting one. The greater number of books were taken from the shelves of the Central Library; these, however, were augmented by later editions and new reference works which were loaned for the duration of the meeting by Toronto publishers. This co-operation was most generously given and added to the value of the display. The Library Unit of the Annual Conference, has now become a feature which is patronized by medical officers of health, public health nurses, sanitary inspectors, laboratory technicians and other public health workers, all of whom appreciate the opportunity thus afforded to examine books and references which they may later requisition from their respective health organizations. Its service is appreciated by the membership who use it constantly throughout the duration of the Conference and who return from year to year to check up on publications issued since the previous meeting.

SUMMER COURSE IN HEALTH EDUCATION

The Library again contributed to the special library compiled for the use of the teachers enrolled in the Summer Course in Health Education. This special library is of considerable help to the students and is much appreciated by them. The attendance at the 1939 session was 153 teachers from the elementary schools of the Province.

DIVISION OF EPIDEMIOLOGY

H. A. ANSLEY, M.B., D.P.H., *Director.*

The details of the varied activities of the Division may be found in this report under the following headings:

I. PREVALENCE OF DISEASE.

Reporting of Communicable Diseases.

Annual Statement of Disease prevalence.

Prevention and control of outbreaks.

Special studies in the epidemiology of diseases.

Diagnostic and consultative work in infectious disease control.

II. DISTRIBUTION OF LITERATURE.

Provision of field records for Local Health work.

Health Education in Infectious Diseases.

III. LOCAL HEALTH ADMINISTRATION.

This includes the work done by the staff of this Division under the supervision of the Chief Medical Officer of Health, relative to the problems and personnel of Local Boards of Health.

IV. DISTRIBUTION OF BIOLOGICAL PRODUCTS AND INSULIN

I. PREVALENCE OF DISEASE.

Legislation—Regulations for the control of infectious diseases remained the same except for the addition of Regulations for the Control of Typhoid and Paratyphoid Fever.

General Reporting of Diseases—There are forty-six infectious diseases reportable in the Province of Ontario, and with the exception of venereal diseases and tuberculosis, the work associated with the study of any or all of these diseases as well as the prevention and control of outbreaks, may rightly be regarded as falling within the field of activities of the Division of Epidemiology.

Information for the Province as a whole regarding the occurrence of these diseases is derived from the reports of (a) organized municipalities through the Local Boards of Health, (of the nine hundred organized, an average of six hundred and fifty municipalities regularly report weekly); (b) unorganized territories through the practising physicians and the Provincial Sanitary Inspectors for these areas.

A survey of local health records with special regard to the reporting forms, for the use of physicians and Secretary of the Local Board of Health for keeping the records, was begun during the year as many requests for the former have come to our attention during the year. In order to encourage better reporting, a pamphlet on the methods and the value of the reporting of cases and deaths was prepared by the Staff of the Division and given out to the physicians in connection with an exhibit which was prepared on case-reporting for the Annual Meeting of the Ontario Medical Association in Hamilton in June, 1939.

Forms were also prepared and are now in use for notifying Local Boards of Health of cases and/or deaths coming directly to the attention of this Division in order that the records of the Local and Provincial Departments will be comparable.

Reporting by Laboratories—One of the most important sources of information as to cases and deaths is through the follow-up of positive Laboratory Reports, received by this Division from the Central Provincial Laboratory and its seven branches.

Up to the present time it has not been possible to include hospital and private laboratories, on a voluntary basis, in this reporting scheme, but it is hoped that early in the ensuing year this very valuable source of information may be added to the present sources.

Each positive laboratory report received for cases and deaths of Typhoid, Paratyphoid, Dysentery, Undulant Fever, Tularemia, Poliomyelitis, and Diphtheria and negative reports as well for the “release” of patients from Enteric Disease restrictions, are followed up. One illustration of the value of this is shown under the section in this report dealing with Typhoid Carriers, where it is noted that by this method twenty carriers of enteric disease have been discovered this year and placed under the proper supervision.

— ANNUAL STATEMENT OF THE PREVALENCE OF DISEASES —

The following statistical tables are presented showing the incidence of the major communicable diseases. The trend of the incidence may be found by consulting the tables showing the incidence over the past five years.

— POLIOMYELITIS —

Two hundred and nineteen cases only were reported during 1939. The bulk of the incidence was due to an unusual number of cases of this disease being reported from Essex and Lambton Counties, where the disease had not shown an increased prevalence during the 1937 outbreak elsewhere in the Province. (See Special Studies page 85).

The tables below present certain facts relative to the disease incidence:

ANALYSIS OF POLIOMYELITIS CASES 1939

Age Groups by Years	Sex		Total
	Male	Female	
0- 1.....	1	3	4
1- 4.....	31	20	51
5- 9.....	32	21	53
10-19.....	25	17	42
20-29.....	7	5	12
30-39.....	2	0	2
40-49.....	1	0	1
50 and Over.....	0	0	0
Age not stated.....	34	18	52
Age and Sex not stated.....	—	—	2
Total.....	133	84	219

POLIOMYELITIS CASES BY MONTHS OF ONSET, 1939.

Type of Case	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov	Dec.	Month not Known	Total
Paralyzed.....	0	1	0	0	1	2	19	18	36	13	5	1	23	119
Non-Paralyzed	0	1	0	0	0	1	12	13	15	4	2	0	14	62
Not stated.....	0	0	0	0	0	2	3	3	9	4	3	0	14	38
Totals.....	0	2	0	0	1	5	34	34	60	21	10	1	51	219

While it was not anticipated that a major epidemic would occur in 1939, still the programme for the care of cases was begun well in advance of the season of greatest incidence.

The Medical Health Officers of the Province were circularized early in the summer advising them of the 1939 programme regarding the after care of poliomyelitis cases.

In order to add effectiveness to the programme a "Policy Letter" outlining the above was sent to each physician—except to the staff of the larger hospitals—as each new case of poliomyelitis was reported. In all, 171 such policy letters were sent.

The policy was briefly as follows:

Splints and Frames.

Standard splints and frames for the use of paralyzed cases were provided free of charge by the Department upon the request of the attending physician. These splints and frames are sent out by the Hospital for Sick Children, which institution notifies this Division of each shipment, thus enabling a further check on case-reporting as well as on the scope of the service. A total of 86 patients were provided with splints and frames during the year.

Hospitalization.

A 3 weeks period, in any of the following hospitals, namely, Metropolitan General Hospital, Windsor; Victoria Hospital, London; Hospital for Sick Children, Toronto; was provided for cases remaining paralyzed subsequent to the period of isolation. The 3 weeks post-isolation hospitalization was supplied to 85 patients in order to give instructions in after care and to supply splints and/or frames.

Respirators.

Respirators, owned by the Department, were placed at strategic centres throughout the Province and were kept available for emergency or suitable cases. 12 of the 18 respirators were transferred over a total of 4,629 miles, in large part for the emergency treatment of cases and to a small extent for the maintenance and repair of the respirators. (This is inclusive of the 4 respirators loaned as an emergency measure to the City of Buffalo, N. Y., at the request and expense of the local health authorities of that City).

— TYPHOID FEVER —

In 1939, in the Province, there were 119 reported cases of Typhoid Fever and a total of 156 cases (the increase representing the results of the follow-up work by means of positive laboratory reports). This is approximately a 50% reduction in the number of cases reported for the corresponding period in 1938.

Only three persons in every one hundred thousand of the population developed Typhoid Fever in 1939, the lowest morbidity rate ever experienced in the Province.

The chief outbreaks during the year were at Hamilton, Goderich, and Dashwood in Southern Ontario accounting for twenty cases and two deaths; and Fort William, Hearst, Ombabika and Olive Township in Northern Ontario, accounting for fifteen cases and one death.

Hale:—Three cases of Typhoid Fever occurred a month apart at Hale, which is in unorganized territory, and at which place is located a Lumber Company Camp. In one section of this Camp, away from the main camp, one hundred and fifty men were employed in cutting wood. The drinking water supplied for the Camp was chlorinated and the food supplied to the men was obtained from the main camp. These men, along with one hundred and fifty others, all partook of the same food and water. It was found by the physician in charge of the camp that some of the men were in the habit of drinking swamp water in the bush section near their work. The cases were all removed to the hospital at Hearst for treatment. Two of these are still Convalescent Carriers and are under supervision of the Local Department of Health.

Hearst:—In the town of Hearst, three cases of Typhoid Fever developed in one family. As this family used raw river water in their home and there were typhoid cases from the unorganized district being treated in the hospital it is possible that these three cases resulted from using this contaminated river water. One other case developed and there was one contact, that developed the disease later. A known carrier had been present in the community who was under supervision but no direct responsibility for the outbreak could be directed to this man.

Hamilton:—Eight cases of Typhoid Fever developed in Hamilton during one week. Other than consultation with the Local Health Authorities no assistance was necessary from the Department in the investigation of these cases.

Goderich:—Seven cases and one death from Typhoid Fever occurred in Goderich during the month of October. Repeated examination of water, milk and suspected carriers gave no lead as to the possible source of infection. The detailed report of the study of this outbreak is not as yet completed as the investigation is still in progress.

Dashwood:—In November, five cases of Typhoid Fever were diagnosed in a family of nine living at Dashwood, Huron County, Ontario. An investigation into the cause of the disease was made by the Local Health Officer and by this Division and all contacts of this family were checked, including members of other families that had visited them, and other human sources where food or drink had been partaken. Water was examined and found to be Class D and all sources of food investigated. Nothing was found that indicated the source of infection. It was stated, however, that the first case (male, age 14 yrs.), had been suffering from what the family called "Influenza" for some time previous and he may have been the cause. Four other members of the family did not develop typhoid and there had been no other cases in the vicinity. Investigations are still proceeding to determine the ultimate source.

Kenora:—In August, three cases of Typhoid Fever occurred and were traced by the Local Health Authorities to a previously unknown carrier, who was a laundress and active church-worker. This carrier was placed under restrictions and no further cases occurred.

Olive Township—In October, two cases of Typhoid occurred in a Lumber Camp in Olive Township which is an unorganized area. Prompt action by the Department, in addition to typhoid vaccination of the camp-workers, apparently prevented the spread of the disease to any other members of the Camp.

Ombabika—In December, at this village in Thunder Bay District, Ontario, which is near Armstrong, three cases originated apparently from two Treaty Indians, one a convalescent and one a chronic carrier. These, after identification, were placed under restrictions and the cases were removed to Sioux Lookout Hospital. No deaths and no further cases have occurred.

— PARATYPHOID FEVER —

Fifty-eight cases were reported, and a total of only sixty-nine cases of this disease are known to have occurred in the Province during the year, which is a reduction over the previous year.

Reference to the Table "Geographical Distribution of Certain Diseases" shows the cases widely distributed over the Province. Only one local outbreak occurred. This was in Fullarton Township, where three cases occurred, all of whom had partaken of food at one home at different intervals. At this home, epidemiological investigations showed the wife of the dairy farmer to be a Chronic Paratyphoid Carrier. When the proper restrictions were placed on the activities of this person no further cases occurred.

It is notable, that of all the known cases of Typhoid and Paratyphoid Fever which occurred this year, not one could be traced to *known* carriers, who had been under Health Department supervision.

— DIPHTHERIA —

During the past year only one hundred and thirty-five cases of Diphtheria have been reported. This total for the year is 50% lower than 1938.

The morbidity rate of 3.5 is the lowest ever recorded in the Province of Ontario and is but 0.4 per 100,000 higher than the rate estimated for Typhoid Fever.

Reference to the County distribution table shows the larger number of cases to be in the Counties of Carleton, Essex, Kent, Norfolk and York and the district of Kenora—some of the increased incidence being related more to size of population than actual increase. However, in South Walsingham Township, Norfolk County, about twelve cases are known to have occurred with two deaths, one of the latter about three months from the onset. While several cases occurred in persons, not toxoided for two years previously, none of these died. The presence of a carrier is suspected to account for the continued occurrence of cases over a considerable period of time. Investigations to determine the carrier are being carried out.

— SCARLET FEVER —

Owing to the fact that the symptoms of this disease in the past few years have become so modified, the chances of spread are therefore proportionately greater. Consequently there is a greater number of missed cases in each outbreak that tend to make control of the disease very difficult.

The present mildness of the disease, encourages parents mistakenly to avoid calling their physician and/or Medical Health Officer and results in the further spread of the disease. There were 6,767 cases of Scarlet Fever reported during the year 1939. This is an increase of about 20% over the previous year.

The chief area to which assistance was given during the year was the municipality of Penetang during a Scarlet Fever outbreak where Dick tests of all children in Public and Separate schools of the town were carried out. Of 523 children, from five to sixteen years of age who were tested, 284 were found to be positive.

There is a growing tendency for municipalities to include immunization by scarlet fever toxin in the local health programme. This is reflected in the increased demand for this biological product; and in the communities using the toxin, the disease appears to have a somewhat lessened incidence.

— CEREBRO-SPINAL MENINGITIS —

In 1939, sixty-four cases of Cerebro-Spinal Meningitis were reported in the Province. This represents a drop in the number of cases as reported for the corresponding period in 1938. The cases with one exception remained near the median for the year.

One small outbreak occurred in the City of Brantford but this was adequately dealt with by the Local Health Authorities.

— SMALLPOX —

Only one suspected case of Smallpox was reported in the Province during the past year. In 1929, 708 cases of Smallpox were reported for that year. During the next four years less than nine hundred cases were reported, there being a decrease each year. In 1933 only 15 cases of Smallpox were reported and since that year only 16 cases have been reported. During the past four years, 8 cases of Smallpox have been reported in the Province and no deaths have occurred.

Many of the emergency visits to Local Health Departments dealt with suspected cases of Smallpox. As the Province has been unusually free from Smallpox during the past ten years the diagnosis has become exceedingly difficult. The complement fixation test, recently devised has been used in some cases, in differentiating this disease from Chickenpox.

— UNDULANT FEVER —

There was a decrease of 25% in the number of cases of Undulant Fever reported during 1939, as compared with the corresponding period of 1938. The highest number of cases of Undulant Fever ever reported in the Province since 1929 was during 1936 when 127 cases were reported.

This disease is essentially rural in origin and related to the consumption of raw milk, though some cases do arise from handling infected animals and hides, and for that reason the greater emphasis on pasteurization throughout the Province as a whole, should show in future a marked decrease in this disease.

Only one definite grouping of cases occurred, namely, four cases in one township. The Local Medical Health Officer is now carrying on an investigation regarding the possibility of a common source of these four cases.

— INFECTIOUS JAUNDICE —

Several areas reported an increase of cases of Infectious or Epidemic Jaundice during 1939. Such increases were reported from Kirkland Lake, Ottawa, London and vicinity and along the Rideau River. (The investigation of these is reported under Special Studies, see page 85).

RABIES.

No human cases were reported during 1939.

During the early part of the year only twenty persons were reported to the Department of Health as having been bitten by animals. The latter on examination were all negative for rabies.

On August 15th a positive report for rabies was received on a dog which originally came from Pittsburg, U. S. A., and had bitten its owner, living at Beaumaris, Ontario. Treatment was started on the patient on August 17th. The patient did not contract rabies.

Nothing further was reported until the Wingham outbreak. Following this no further animals were diagnosed as positive for rabies during the year.

Wingham Outbreak.

On September 25th the first positive report was received in the Division of Laboratories from a rabid dog in Wingham which had bitten several people. On September 29th, an Epidemiologist of this Division visited the Local Health Officers of Huron County, and confirmed the report that there was an outbreak of this disease in dogs and that several people had been bitten. On October 3rd, a Veterinarian of the Department of Health made a survey of suspected and rabid dogs in the area. This area was subsequently surveyed by the Veterinarian and an Epidemiologist six times during the following two months. On October 10th the Federal Department of Agriculture was notified that the heads from four dogs had been found positive from the area. A Federal Veterinarian Inspector for Huron County was requested and obtained on October 11th. On October 19th the Federal Department of Agriculture was asked to provide a local "Federal Quarantine" area and twenty-two townships were quarantined on October 28th. These townships in the counties of Bruce, Huron and Perth were as follows: Turnberry, Howick, Morris, Grey, Wawanosh East, Wawanosh West, Ashfield, Colborne, Hullett, McKillop, Goderich, Huron, Kincardine, Kinloss, Culross, Carrick, Brant, Greenock, Bruce, Wallace, Elma, Logan.

Two Federal Veterinarian Inspectors were also detailed to work in this area. The Local Health Officers of Bruce, Huron and Perth Counties were notified of the quarantine by circular letter from this Division, immediately the Department was so advised by the Federal Department.

At weekly intervals summaries of reports being received from the area were made by this Division and forwarded to the Local Branch in Toronto of the Federal Department of Agriculture.

The outbreak has remained fairly well confined to the quarantine area and no positive laboratory reports have been received since December 25th. The last was from a farm near Mildmay, Bruce County, which farm had previously reported positive animals.

A summary of the outbreak in brief is as follows:

1. Patients:—	
No. of persons bitten.....	11
No. of persons exposed.....	75
No. of persons received vaccine.....	87
No. of persons developed the disease.....	0
2. Animals:—	
No. of positive laboratory diagnoses made.....	6
No. of animals known to be rabid (Dogs 7, Cats 1, Cows 2, Heifers 2, Horses 1).....	13
3. No. of Vaccine treatment packages shipped.....	115
4. No. of field visits made by Epidemiological Staff 3, Veterinarian 3.....	6

REPORTED CASES OF CERTAIN DISEASES
Five Years—1935-1939

YEAR	NUMBER OF CASES REPORTED								
	Typhoid Fever	Para- Typhoid	Polio- myelitis	Diphtheria	Scarlet Fever	Cerebro-Spinal Meningitis	Infectious Jaundice	Smallpox	Undulant Fever
1935	310	58	108	361	7,265	32	10	7	85
1936	251	58	208	290	8,927	52	46	1	127
1937	241	80	2,548	506	5,581	67	89	0	104
1938	235	68	160	234	5,359	88	701	6	101
1939	119	58	216	131	6,767	66	502	1	66
YEAR	* MORBIDITY RATE PER 100,000 POPULATION								
1935	8.4	1.6	2.9	9.8	198	0.9	0.3	0	2.3
1936	6.8	1.6	5.6	7.9	242	1.4	1.2	0	3.5
1937	6.5	2.2	68.6	13.6	150	1.8	2.4	0	2.8
1938	6.3	1.8	4.3	6.3	144	2.4	18.8	0	2.7
1939	3.2	1.5	5.8	3.5	180	1.8	13.4	0	1.8

*Based on population of Ontario, estimated by Dominion Bureau of Statistics.

ANNUAL STATEMENT OF DISEASE PREVALENCE--ALL DISEASES

	Smallpox		Scarlet Fever		Diphtheria		Measles		Whooping Cough		Typhoid Fever		Tuber- culosis		Polio- myelitis		Cerebro- Spinal Meningitis (Meningococ- cus)		Influenza	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1939																				
Jan.....	0	0	801	7	22	3	3,385	2	1,286	0	5	0	226	27	0	0	5	2	209	4
Feb.....	1	0	829	6	12	1	4,528	1	1,120	1	3	0	190	44	1	0	5	3	364	3
March.....	0	0	745	6	15	1	3,824	4	859	4	4	0	210	35	0	0	2	3	4,613	49
April.....	0	0	747	8	11	0	4,076	1	796	5	9	2	243	44	0	0	12	2	2,296	61
May.....	0	0	492	1	8	0	3,267	0	610	0	1	1	240	36	0	0	8	3	416	12
June.....	0	0	412	0	7	0	3,680	2	376	1	6	1	220	37	5	0	2	2	32	1
July.....	0	0	319	5	10	0	2,006	4	443	1	16	2	294	49	42	2	2	2	8	0
August....	0	0	176	0	3	1	408	2	292	0	19	0	186	26	34	5	9	0	28	1
Sept.....	0	0	275	1	8	0	129	0	372	2	17	1	211	39	73	3	5	0	33	0
October...	0	0	451	2	10	0	381	0	200	1	12	0	193	25	37	3	2	0	79	1
Nov.....	0	0	677	2	15	1	859	0	254	1	18	0	173	24	18	0	10	1	91	3
Dec.....	0	0	843	3	10	0	1,284	1	415	2	9	2	184	33	6	0	2	0	115	2
'39 Total.	1	0	6,767	41	131	7	27,827	17	7,023	18	119	9	2,570	419	216	13	64	18	8,284	137
'38 Total.	6	0	5,359	35	234	6	16,606	6	7,569	32	235	31	2,520	505	160	18	88	22	943	31
'37 Total.	0	0	5,581	27	506	29	15,809	5	5,040	9	241	17	2,371	525	2,544	109	67	27	13,330	185

ANNUAL STATEMENT OF DISEASE PREVALENCE—ALL DISEASES—Continued

1939	Pneumonia		Syphilis		Gonorrhoea		Chickenpox		Encephalitis		German Measles		Mumps		Septic Sore Throat		Undulant Fever	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
January.....	129	224	218	1	345	0	1,837	1	0	1	85	0	270	0	23	2	5	0
February.....	128	219	249	2	289	0	1,380	1	0	0	126	0	333	0	20	0	2	0
March.....	209	310	296	3	283	0	912	0	0	0	151	0	389	0	14	0	8	0
April.....	202	351	315	1	322	0	710	0	3	3	93	0	384	0	22	1	2	0
May.....	123	192	238	6	262	0	477	0	3	1	139	0	285	0	7	1	3	0
June.....	57	111	299	5	357	0	854	0	0	0	284	0	266	0	13	0	5	0
July.....	33	98	347	6	360	0	691	0	2	2	118	0	143	0	13	0	11	0
August.....	40	66	218	1	350	0	240	0	1	1	28	0	42	0	17	0	6	0
September.....	44	106	273	4	464	0	173	0	0	0	29	0	91	0	17	0	8	0
October.....	52	103	275	5	352	0	548	0	0	0	22	0	144	0	6	0	3	0
November.....	77	124	265	1	356	0	1,196	0	0	2	32	0	275	0	35	0	2	0
December.....	113	172	292	3	385	0	2,115	0	0	0	53	0	674	0	22	1	11	0
1939 Total.....	1,207	2,076	3,285	38	4,125	0	11,133	2	9	10	1,160	0	3,296	0	209	5	66	0
1938 Total.....	1,221	2,185	3,010	47	4,188	1	10,881	0	11	8	867	0	4,119	0	113	6	97	0
1937 Total.....	1,020	2,585	2,415	23	3,481	1	11,795	1	11	11	913	0	9,696	0	244	12	104	0

ANNUAL STATEMENT OF DISEASE PREVALENCE--ALL DISEASES--Continued

	Dysentery		Erysipelas		Paratyphoid Fever		Infectious Jaundice		Tetanus		Tularaemia		Conjuncti- vitis		Malaria		Actinomy- cosis	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1939																		
January.....	1	0	17	1	3	0	71	0	2	2	0	0	0	0	0	0	0	0
February.....	2	0	23	1	3	0	119	1	1	0	0	0	0	0	0	2	0	0
March.....	6	1	28	1	3	0	66	0	0	0	0	0	0	0	1	0	0	0
April.....	5	0	33	0	4	0	7	1	0	0	0	0	0	0	0	0	0	0
May.....	5	0	16	1	7	0	7	0	0	0	0	0	0	0	0	0	0	0
June.....	4	0	6	0	7	0	3	1	0	0	0	0	2	0	0	0	0	0
July.....	3	1	12	0	3	0	40	0	4	2	1	0	0	0	1	0	0	0
August.....	5	0	13	1	9	0	28	0	0	1	0	0	0	0	0	0	0	0
September.....	4	0	7	0	12	1	21	0	4	1	0	0	0	0	0	0	0	0
October.....	14	0	8	0	2	0	25	0	0	0	0	0	0	0	0	0	0	0
November.....	4	1	6	0	1	0	30	0	3	2	0	0	0	0	0	0	0	0
December.....	0	1	18	0	4	0	85	0	1	0	0	0	0	0	0	0	0	0
1939 Total.....	53	4	187	5	58	1	502	3	15	8	1	0	2	0	2	2	0	0
1938 Total.....	162	8	128	10	68	0	701	2	11	7	1	0	13	0	6	2	1	1
1937 Total.....	103	9	139	11	80	2	89	2	10	10	1	0	6	1	0	6	0	0

GEOGRAPHICAL DISTRIBUTION OF CERTAIN DISEASES
IN ONTARIO, 1939—BY COUNTY

COUNTY OR DISTRICT	Poliomyelitis		Paratyphoid		Typhoid		Diphtheria	
	Total Cases	Para- lyzed Only	Cases	Deaths	Cases	Deaths	Cases	Deaths
Algoma.....	.....	.....	1	.....	.....	.....	.....	.....
Brant.....	.....	.....	.....	.....	.....	.....	.....	.....
Bruce.....	4	2	1	.....	5	.....	.....	.....
Carleton.....	9	5	1	.....	6	1	18	.....
Cochrane.....	.....	.....	3	.....	20	1	3	.....
Dufferin.....	.....	.....	.....	.....	1	.....	2	.....
Dundas.....	2	2	.....	.....	1	.....	1	.....
Durham.....	1	1	.....	.....	.....	.....	1	.....
Elgin.....	3	2	.....	.....	2	.....	1	.....
Essex.....	67	40	.....	.....	8	.....	13	4
Frontenac.....	.....	.....	2	.....	2	.....	.....	.....
Glengarry.....	1	1	.....	.....	.....	.....	1	.....
Grenville.....	.....	.....	.....	.....	.....	.....	2	.....
Grey.....	1	.....	1	.....	2	.....	1	.....
Haldimand.....	3	1	.....	.....	1	.....	.....	.....
Haliburton.....	.....	.....	.....	.....	.....	.....	2	1
Halton.....	2	1	.....	.....	.....	.....	.....	.....
Hastings.....	.....	.....	3	.....	2	.....	2	.....
Huron.....	.....	.....	6	.....	16	2	2	.....
Kenora.....	10	8	.....	.....	4	.....	10	.....
Kent.....	6	.....	1	.....	2	.....	1	.....
Lambton.....	46	5	.....	.....	7	2	1	.....
Lanark.....	.....	29	.....	.....	.....	.....	1	.....
Leeds.....	.....	.....	3	.....	3	1	.....	.....
Lennox and Addington	.....	.....	1	.....	.....	.....	.....	.....
Lincoln.....	.....	.....	5	.....	3	.....	5	.....
Manitoulin.....	.....	.....	.....	.....	.....	.....	.....	.....
Middlesex.....	8	3	3	.....	1	.....	.....	.....
Muskoka.....	1	1	.....	.....	.....	.....	.....	.....
Nipissing.....	.....	.....	.....	.....	6	.....	3	.....
Norfolk.....	1	.....	1	.....	1	.....	12	2
Northumberland.....	.....	.....	.....	.....	.....	.....	.....	.....
Ontario.....	.....	.....	2	.....	2	.....	1	.....
Oxford.....	2	.....	.....	.....	3	.....	.....	.....
Parry Sound.....	4	1	2	.....	1	.....	.....	.....
Peel.....	.....	.....	1	.....	.....	.....	2	.....
Perth.....	1	1	5	1	2	.....	1	.....
Peterborough.....	1	1	.....	.....	1	.....	1	.....
Prescott.....	.....	.....	2	1	2	.....	7	.....
Prince Edward.....	1	.....	.....	.....	.....	.....	2	.....
Rainy River.....	.....	.....	.....	.....	.....	.....	1	.....
Renfrew.....	.....	.....	.....	.....	.....	.....	.....	.....
Russell.....	2	1	.....	.....	1	.....	.....	.....
Simcoe.....	1	.....	6	.....	4	.....	2	.....
Stormont.....	1	1	3	.....	.....	.....	3	.....
Sudbury.....	.....	.....	.....	.....	4	.....	6	.....
Thunder Bay.....	4	2	.....	.....	7	1	.....	.....
Timiskaming.....	1	1	2	.....	.....	.....	.....	.....
Victoria.....	.....	.....	2	.....	1	.....	1	.....
Waterloo.....	.....	.....	1	.....	2	.....	.....	.....
Welland.....	8	.....	.....	.....	1	.....	.....	.....
Wellington.....	1	1	2	.....	.....	.....	2	.....
Wentworth.....	.....	.....	.....	.....	10	2	.....	.....
York.....	27	9	9	.....	22	2	24	1
Totals.....	219	219	69	2	156	12	135	8

— PREVENTION AND CONTROL OF OUTBREAKS OF DISEASE —

In fulfillment of the statutory duties of the Department of Health with regard to the study, prevention and control of outbreaks of infectious diseases, the Division of Epidemiology has the responsibility of recognizing early any significant, though slight, increase in the local prevalence of these diseases, and by immediate action, attempting to limit the spread of infection, to prevent large epidemics.

As soon as any notification of an unusual prevalence of disease in any municipality is received (whether from the routine weekly reports, requisitions for biological products for the treatment of unreported cases, newspaper clippings, correspondence, etc.), immediate steps are taken to ascertain from the Local Authorities, what control measures have been instituted and in what way the Provincial Department may actively help in this work. The Department urges the municipality to make early and full use of the services of the epidemiological staff of this Division, in order that by such active co-operation of the Local and Central authorities, outbreaks may be more rapidly brought under control. It will readily be appreciated that the scope of this service is more extensive than appears on the surface, when one considers the area of the Province, the fact that such control may necessitate detailed epidemiological study as well as intensive investigation of local environmental sanitation, and the time required for completion of such projects.

A brief summary of only the major outbreaks, which occurred during the past year, and in most of which this Division was able to render active service to the Local Boards of Health, is as follows:

SUMMARY OF MAJOR OUTBREAKS—1939.

DISEASE	No. of Outbreaks Reported	No. of Counties and Districts Involved	Estimated No. of Cases	No. of Deaths
Typhoid.....	7	5	35	4
Paratyphoid.....	1	1	3	0
Diphtheria.....	1	1	12	2
C. S. Meningitis.....	1	1	5	1
Rabies.....	1	3	No human cases or deaths.	
Scarlet Fever.....	1	1	350	0
Undulant Fever.....	1	1	4	0
Poliomyelitis.....	2	2	76	8

In the prevention and control work relative to outbreaks of disease, the staff made more than 45 Field Trips to municipalities in the various counties of Southern Ontario as well as to the Northern districts.

In addition, the services of one member of the staff was made available for a month to the Local Boards of Health in Sarnia and Windsor in the control of the Poliomyelitis outbreak in these areas.

Almost a month was spent in Typhoid Control work by two members of the staff, conducting a Typhoid-Paratyphoid Carrier survey in Southern Ontario, gathering the essential data relative to the payment of compensation for carriers.

One member of the staff spent considerable time in completing a field survey on the epidemiology of the Infectious Jaundice outbreak in 1939.

— SPECIAL STUDIES IN THE EPIDEMIOLOGY OF DISEASE —

Special studies were made in connection with epidemics of various diseases during the year.

The chief of these studies were as follows:

Epidemic Jaundice—Southern Ontario—January.

Poliomyelitis—Sarnia and Windsor—July and August.

Typhoid Fever Control and Carrier Survey—September and October.

— EPIDEMIC JAUNDICE —

Investigation of this disease was carried out in London by a member of the staff of this Division. Through the co-operation of the local medical officer of health and his staff, an extensive study was made. Data sheets were compiled on each case, and over two hundred and fifty cases were studied. The cases showed no serious complications and no deaths. No cases of *Leptospira icterohaemorrhagiae* nor any cases of Canine Jaundice (*Leptospira canicula*) were found during the examination of blood from the cases of wild rats captured during the outbreak. All food and water was eliminated as a cause. Direct contact appeared to be the outstanding feature in its spread. The incubation period was generally of very long duration, averaging twenty-eight days. A report of this survey was read at the Canadian Public Health Association meeting in June.

— POLIOMYELITIS STUDY IN SARNIA AND WINDSOR —

As this study has not been reported elsewhere it is herewith presented in some detail. The Field Studies were carried on by this Division in association with the School of Hygiene, University of Toronto, the Local Boards of Health at Sarnia, Windsor, and neighboring Townships.

SARNIA.

On May 29th the first case of paralysis for the City of Sarnia (population 25,000) was reported for the year. No further cases were reported until June 23rd. The subsequent cases reached a peak in the first week of August. In all there were seventy-one cases of all types (frank poliomyelitis, suspect or abortive, and summer influenza) reported and twenty-six of these in the City of Sarnia were of the frank type with seven deaths—a case rate of about one per one thousand and a death rate of about twenty-eight per one hundred thousand. (It is interesting to note that Sarnia had had very few reported cases of the disease in the 1937 epidemic).

TIME DISTRIBUTION OF CASES.

	All Cases
Month of May.....	1
Week of June 23–30th, inclusive.....	3
July 1–7th "	6
" 8–14th, "	9
" 15–21st, "	11
" 22–28th, "	15
" 29–Aug. 4th, "	17
Aug. 5–11th, "	2
" 12–22nd, "	7

There were seven deaths from the disease, the cause of the first one being at first unrecognized by the physician and diagnosed as pneumonia. A respirator was shipped to Sarnia by the Provincial Department of Health and two nurses were supplied by the Local Board of Health for the care of the severe cases. The three earliest cases were transferred to London.

ANALYSIS OF THE FATAL CASES

	Total	Treated in Respirator
Fatal Poliomyelitis Cases.....	7	5
Bulbar type (not diagnosed as Poliomyelitis)....	1	0
Bulbar type (diagnosed as Poliomyelitis).....	4	3
Intercostal type, diagnosed as Poliomyelitis.....	2	2

FATAL CASES BY AGE, SEX, AND ILLNESS

PATIENT	Age	Sex	Length of Illness	Type of Illness
M. S.	11 mos.	M	5 days	Bulbar type
B. H.	5 yrs.	M	3 days	Bulbar type
E. M.	11 yrs.	F	10 days	Bulbar type
T. N.	8 yrs.	M	7 days	Intercostal type
J. G.	4 yrs.	M	4 days	Intercostal type
R. M.	15 yrs.	M	3 days	Bulbar type
W. R.	14 yrs.	M	6 days	Bulbar type

In addition to the twenty-seven frank cases of Poliomyelitis, there occurred in the child population, at the same time, with the same seasonal peak and often occurring in the same homes, a widespread non-fatal type of illness, commonly referred to as "summer influenza."

In order to study the relationship of this illness to Poliomyelitis (as the 1937 epidemic of Poliomyelitis had shown a similarly associated illness), and in order to help the Local Health Authorities limit the spread of the disease, the Provincial Department of Health undertook a Poliomyelitis Study in Sarnia.

Total cases (all types) investigated in Sarnia and surrounding Townships, including one case in Kent County, were as follows:

Sarnia City.....	58
Poliomyelitis—died.....	6
Poliomyelitis—with paralysis.....	9
Poliomyelitis—non-paralyzed.....	12
Suspect Poliomyelitis.....	8
Summer Influenza.....	23
Point Edward.....	5
Poliomyelitis—died (was reported as Pneumonia)	1
Poliomyelitis—with paralysis.....	3
Poliomyelitis—non-paralyzed.....	1
Suspect Poliomyelitis.....	0
Summer Influenza.....	0
Sarnia Township.....	5
Moore Township.....	1
Plympton Township.....	2
Camden Township—Kent County.....	1
Warwick Township.....	1
Total.....	73

A laboratory was provided by the Division of Laboratories, and housed in rooms at the Lochiel St. School, provided by the Local Board of Education. The Laboratory personnel had an average of two technical workers during the study. This laboratory provided for a diagnostic service for the local physicians in the examination of spinal fluids; also for the collection, labelling and forwarding of specimens to the Central Laboratory and to the Laboratory of the School of Hygiene for further study.

Report of Spinal Fluids for diagnosis on known and suspected cases: These fluids were taken by the physician and/or the Staff of the Poliomyelitis Clinic, and were examined in the Clinic Laboratory except for the very early cases before the Clinic was set up. This diagnostic service was supplied twenty-four hours a day.

ANALYSIS OF SPINAL FLUIDS

Poliomyelitis with Paralysis.....	15
Poliomyelitis without Paralysis.....	15
Summer Influenza.....	1
Suspect Poliomyelitis.....	5
Other Illness.....	1
Total.....	37

CLINICAL LABORATORY WORK

		Washings	Stools	Bloods
Poliomyelitis.....	Cases	10	20	9
	Contacts	17	102	40
Suspect Poliomyelitis.....	Cases	3	7	1
	Contacts	3	22	0
Summer Influenza.....	Cases	4	17	5
	Contacts	0	37	16
Totals.....	Cases	17	44	15
	Contacts	20	161	56
Totals.....	.....	37	205	71

The non-diagnostic work of the Study consisted in obtaining specimens of blood, nasal-washings and stools, for bacteriological and virus study, from members of the families covered by the survey.

The School of Hygiene consented to attempt to devise a Complement-Fixation Test applicable to blood serum. For this purpose negative-control blood specimens were necessary. The Local Red Cross of Sarnia City, as a volunteer effort, cavassed homes where no illness had been present during the summer, to obtain children for the blood test. The children, who were “screened” for any suspicious illness by a carefully taken history-form were paid a nominal sum for the blood test, the money being paid by the Local Red Cross and subsequently refunded by the Provincial Department of Health.

SUMMARY OF CONTROL BLOOD SAMPLES

Age Groups	No Illness	Slight Illness	Contact of Case	Total Specimens
5- 9 yrs.	37	4	5	46
10-15 yrs.	28	4	5	37
	65	8	10	83

Case Histories of the Family Groups:—On the History forms were recorded the data regarding the case, the contacts, the family group, the environment, the source of infection, etc. The following table shows the extent of this work:

	Polio Cases	Suspect Polio	Summer Flu	Total
Completed Histories	40	10	23	73

DISTRIBUTION BY CASE LOCATION

	No. of Histories
Sarnia City.....	57
Sarnia Township.....	11
Plympton Township.....	2
Warwick Township.....	1
Moore Township.....	1
Toronto City.....	1
	73

The Sarnia study was conducted from July 25 to August 31. A more detailed report of the study will be published when the laboratory work has been completed.

WINDSOR

A survey of the incidence of the earlier cases in Windsor City was made by an Epidemiologist and a supervising nurse of the Provincial Department of Health and an assistant Epidemiologist from the School of Hygiene, University of Toronto, in association with the Local Board of Health, to determine whether this area would be suitable for a study similar to that conducted in Sarnia.

The Windsor epidemic was about one month later than the Sarnia epidemic in reaching a peak, and thus coincided with that of the Detroit epidemic.

TIME DISTRIBUTION OF CASES AND DEATHS

Month Ending	Cases	Deaths
June 30.....	0	....
July 29.....	5	0
Aug. 26.....	14	0
Sept. 30.....	19	1
Oct. 28.....	10	0
Nov. 25.....	2	0
Dec. 30.....	0	0
Total.....	50	1

Because more than enough material had been collected at Sarnia and because reporting of cases of "Summer Influenza" and "Suspect" Poliomyelitis had not been carried on at Windsor, it was felt that the study at Windsor should be limited to case histories without further laboratory work, except to obtain a few blood samples from acute cases.

A total of twenty-six cases and family histories were taken. Eight blood specimens from acute cases only, were taken for study and forwarded to the School of Hygiene. The final report on this study will be included with that of the Sarnia outbreak when completed.

— TYPHOID FEVER CONTROL AND CARRIER STUDY —

Immediately following the passage of the new Regulations for the Control of Typhoid and Paratyphoid Fevers (which Regulations are printed in detail in the Annual Report of the Solicitor to the Department), routine forms and procedures were set up in this Division for: the follow-up of positive laboratory reports; the collection of information about the cases and carriers from physicians and Medical Health Officers; the formation of a Central Registry for Cases, Deaths and Carriers of these diseases by name, municipality and county; for the proper release of patients and carriers, and for the payment of carriers.

All Medical Health Officers in the Province were advised of the new Regulations and procedures, by circular letter from this Division.

In addition, stencilled material has been prepared for the use of physicians and Medical Health Officers on:

- (1) Typhoid Fever Control in Ontario.
- (2) Convalescence from Typhoid Fever.
- (3) Suggestions for the discovery of Carriers. This material is sent to each physician reporting a new case of either Typhoid or Paratyphoid infection.

While the routine follow-up work required to carry out the above control work is time-consuming and accounts for a considerable portion of the time and effort expended by the staff of this Division, the value of this work is evident in the following table showing the carriers discovered by this method this year.

Type of Disease	Carriers Discovered in 1939		Total
	Convalescent	Chronic	
Typhoid Fever.....	10	*3	13
Paratyphoid "B"	4	1	5
Dysentery.....	1	1	2
Total.....	15	5	20

*One was a non-resident carrier from the United States. The above carriers have been placed under the proper Health Department supervision.

Carrier Study.

In order that the payment of compensation to carriers might properly be limited to those who are indigent or who are suffering loss of income due to Health Department restrictions, it was decided to personally investigate all known or suspected carriers. In this manner information was collected by

two members of the Staff of this Division as to the financial and carrier status of the *known* and *suspected* carriers. To date it has been possible to survey only Southern Ontario, where a total of 47 carriers were visited in 20 counties and 34 municipalities, at intervals over a period of 2 months.

Result:—Of the 63 *known* carriers, (4 of whom are now removed from the roster—3 having died and 2 released by gall-bladder operation), and 23 *suspected* carriers, only 4 were placed on compensation. Details of payment are shown in the following table:

PAYMENT OF CARRIER COMPENSATION

Age and Sex	County	Disease	Year	Cases and Deaths Caused	Occupation	Date Compensation began	Amount Paid per month
18 F	Hastings	Typhoid	1938	2 Cases, 1 Death	Schoolgirl and Domestic	Nov. 1	\$15.00
62 F	Hastings	Typhoid	1927	9 Cases, 2 Deaths	Domestic and Foodhandler	Nov. 1	20.00
62 M	Hastings	Typhoid	1919	7 Cases or more and 1 Death	Dairy Farmer	Sept. 1	20.00
48 F	York	Typhoid	1935	9 Cases and no Death	Foodhandler Practical Nurse	Nov. 1	10.00
Total—4 carriers are paid—Monthly, \$65.00. Annually, \$780.00.							

It is probable that as the work of investigation with respect to carrier and financial status continues more persons will, of necessity, be placed on compensation.

— DIAGNOSTIC AND CONSULTATIVE WORK IN INFECTIOUS DISEASES —

This service was given to physicians, Hospitals and Local Medical Officers of Health throughout the Province during the year and consisted largely in the diagnosis of difficult cases of diseases and advice as to isolation, quarantine and immunization. The Staff of this Division gave aid to over 30 Local Medical Officers of Health in response to requests for emergency assistance. Assistance was given by members of this Division to Local Boards of Health in planning immunization programs and also in doing skin tests for immunization. One recent example serves to illustrate this type of survey. (In one municipality, nine hundred school children from two schools were Dick tested. From the first school where Scarlet Fever had not been prevalent, approximately 70 per cent. were Dick positive, while in the second school where Scarlet Fever had been present for some time 30 per cent. only were positive)

Analyses are made by this Division, if desired by the Local Medical Officer of Health, of the results obtained in immunization as recorded on the Field Records supplied by the Provincial Department. One interesting example of this type of analysis showed that, of the children who were Dick-positive before immunization, 68 per cent. were still positive two weeks after the fifth dose of toxin. The Local Medical Officer of Health then undertook to study similarly in a subsequent group, the immunity after four, six and eight weeks respectively.

Advice and assistance regarding the prevention and control of infectious diseases in various Ontario Hospitals has been continued during the year.

II. DISTRIBUTION OF LITERATURE

This consists of the provision of certain recording forms for Local Health work to nurses and Local Medical Officers of Health; and the distribution of pamphlets and other printed material upon the nature and control of Infectious Diseases to physicians, nurses, Local Medical Officers of Health, and the lay public.

Field Records:.

The recording forms have proven to be of assistance in furthering local immunization programs and in the past six months 24,168 local health recording forms have been distributed.

Health Education in Infectious Diseases.

The distribution of information as to the nature and control of Infectious Diseases is, and should be, one of the most important functions of the Division. In this respect, particular attention is paid to supplying the needs of any of the local voluntary health agencies who are organized to pursue a definite program of health education. The demand for this type information for Local groups is constantly increasing. With the aim of improving the service given in this matter the available materials for Health Education have been surveyed during the year and the various forms of pamphlets are being brought up to date. The diseases about which material at present is maintained by the Provincial Department of Health are as follows: Diphtheria, Scarlet Fever, Poliomyelitis, Rabies, Whooping Cough, Tularemia, Typhoid Fever and Smallpox. During the past six months the records of this Division show that 4,371 pamphlets were distributed.

III. LOCAL HEALTH ADMINISTRATION

Owing to the limitations of personnel specifically allocated to this type of work the Staff of the Division of Epidemiology contribute to supervision of, and practical aid and advice to, Local Health authorities as carried out in the programme of the Chief Medical Health Officer.

In addition to the services previously outlined, in helping to plan the local programs for immunization and in the distribution of literature and recording forms, the Division also contributes in the following ways:

The addressograph work, very necessary for circularizing Medical Health Officers with regard to changes in Public Health Legislation or amendments, Departmental policy, emergency notices in the times of epidemics, etc., is maintained by the Staff of this Division. The plates are reviewed and corrected monthly, in co-operation with the Ontario Medical Association. The time-consuming work necessary for preparation and mailing to seven hundred Health Officers is done by this Division.

The preparation and the printing of the Annual Roster of Personnel of both the Provincial and Local Departments of Health, which contains over eighteen hundred names (listed by County and Municipality) is the duty of the Staff of the Division. The corrections and revisions a result of changes in personnel during each year involve considerable added work.

This year a roster was completed by the Staff as a Central Registry of the seven hundred Medical Health Officers for the Province, and this will be revised during the year to provide data about Medical Health

Officers and the Local Health programme as a means of ready reference for the Office of the Chief Medical Officer of Health in the work of Local Health Administration.

Annual Reports of Local Boards of Health.

The Provincial Department of Health supplies the form in triplicate for the recording of the annual report of the Local Boards of Health. The mailing, receipt and sorting of these annual reports to and from the nine hundred municipalities is handled by the Staff of this Division each year.

In addition this Division contributed to the time and effort expended on the revision of the Annual Report Forms. This was carried out by the Department of Health for the purpose of allowing the municipalities to express more adequately the various local Health programmes.

IV. DISTRIBUTION OF BIOLOGICAL PRODUCTS AND INSULIN

Statistical data for the fiscal year, April 1st, 1938, to March 31st, 1939, the amounts and cost of distribution are included in this section.

The supply of Biological Products and Insulin is a joint responsibility of the Division of Laboratories, and this Division—the former providing for storage and mailing, and the latter for all the purchasing, record-keeping and accounting. In the case of Insulin, this also includes the preparation and mailing of quarterly accounts to an average of seven hundred municipalities.

For convenience the annual summary is divided into the reports upon (a) *Biological Products*; (b) *Insulin*.

BIOLOGICAL PRODUCTS

During the year the Department continued to supply free biological products through 12 distributing centres. (The Central Laboratory and its seven branches; the offices of local Departments of Health at Brantford, Hamilton, Owen Sound and Windsor.)

Early in the year consideration was given to, and the work begun on an intensive survey of the extent and costs of the provision of these products and a report on this will be forthcoming on its completion.

The biological products so distributed through the physicians as a service to the public are for:

(a) The Prevention of disease by *active immunization*: Diphtheria Toxoid, Scarlet Fever Toxin, Smallpox, Rabies and Pertussis Vaccines.

(b) The prevention of disease by *passive immunization* and for the *treatment of cases*: Diphtheria, Scarlet Fever and Tetanus Antitoxins, Anti-meningococcus and Anti-anthrax Serums.

(c) The testing of susceptibility or immunity; Schick and Dick Test material, and Tuberculin.

Tuberculin has been supplied throughout the year and details of the distribution for this product may be seen in the following tables covering the period March to December, 1939.

DISTRIBUTION OF TUBERCULIN

No. of private physicians supplied with tuberculin.....	766
No. of Hospitals supplied with tuberculin.....	62
No. of Sanatoria supplied with tuberculin	9
No. of Clinics (non-Departmental) supplied with tuberculin.....	26

AMOUNT OF TUBERCULIN DISTRIBUTED

TYPE	1 cc. Vials		5 cc. Vials		Total	
	No.	Contents (cc.)	No.	Contents (cc.)	No. of Vials	Contents (cc.)
No 1 Solution.....	2,335	2,335	1,164	5,820	3,499	8,155
No. 2 Solution.....	735	735	.....	.....	735	735
Total.....					4,234	8,890

COST OF TUBERCULIN DISTRIBUTED

2335 vials of No. 1 Solution (1 cc.) @ .30..	\$ 700 50
1164 vials of No. 1 Solution (5 cc.) @ .95..	1,105 80
735 vials of No. 2 Solution (1 cc.) @ .35..	257 25
Total Cost.....	\$ 2,063 55

Pertussis Vaccine has been added to the list only during the last two months of the calendar year, and owing to this and the further fact that the season of greatest prevalence of this disease is still to come, it is too soon to form an estimate as to the probable expenditure for this product.

INSULIN

The Department of Health provides free insulin to those persons in whose treatment this product is required and who would otherwise be deprived of it. Diabetic patients able to pay for insulin are not supplied by the Department.

The records of this Division for the Fiscal Year 1938-39 as to the number of patients receiving this service is shown in the following table:

PATIENTS USING INSULIN	Fiscal Year 1938-39		
	Male	Female	Total
City of Toronto.....	338	678	1,016
Province of Ontario, exclusive of Toronto.....	946	1,329	2,275
Total.....	1,284	2,007	3,291

While the provision of insulin is free to those unable to pay for it, the Department pays 75% of the cost and the Local Municipality pays 25%, the latter being liable for this as soon as the patient takes up residence in that municipality. While this re-allocation of total costs in part to the local authorities which was first begun in 1935-36 has resulted in a marked increase in cost-accounting by this Division because of the necessity for sending out quarterly accounts to an average of seven hundred municipalities, still the fact that this re-allocation has resulted in a 45% reduction in the cost of distribution of Insulin seems sufficient justification for the work required.

Insulin is provided in three forms, 1. Protamine Zinc Insulin in vials of four hundred units; 2. Modified Insulin (zinc-crystals process)—in vials of four hundred units; 3. Unmodified or Plain Insulin in vials of two hundred, eight hundred and one thousand units.

During the year the yellow-label package of four hundred units prepared by the unmodified process was changed to the grey-label package, four hundred units, prepared by the zinc-insulin crystalline process—the treatment of the patient by each type of insulin remaining the same. The Division circularized all Distributing Centres and all known diabetic clinics in advance of the change.

The 1,000-unit size vial of Unmodified or Plain Insulin is provided for Insulin Shock Therapy and is largely used by the Ontario Hospitals, for which work, the Division advances the Insulin and the cost is re-allocated to the various Hospitals. The scope of this service is given by the following table for the fiscal year:

INSULIN FOR INSULIN SHOCK THERAPY

FISCAL YEAR 9 mos. only, 1939	Vials of 1,000 Units Amount	Insulin Supplied Cost
April.....	36	\$ 54.00
May.....	36	54.00
June.....	42	63.00
July.....	36	54.00
August.....	60	90.00
September.....	48	72.00
October.....	72	108.00
November.....	72	108.00
December.....	12	18.00
Totals.....	414	\$621.00

STATISTICAL TABLES
RELATIVE TO THE DISTRIBUTION OF
BIOLOGICAL PRODUCTS AND INSULIN
For the Fiscal Year
APRIL 1st, 1938 TO MARCH 31st, 1939

BIOLOGICAL PRODUCTS—DISTRIBUTION BY MONTH

MONTH	DIPHTHERIA ANTITOXIN					DIPHTHERIA TOXOID								
	1M Units	Cost \$ C	10M 20M 40M Units	Cost \$ C	Syringes	Cost \$ C	One Person	Cost \$ C	Six Persons	Cost \$ C	Twelve Persons	Cost \$ C	Diluted	Cost \$ C
1938			M											
April.....	93	13 02	2,400	288 00	25	392 40	1,962	464 80	581	1,681 00	1,681	1,681 00	111	22 20
May.....	115	16 10	2,480	297 60	50	389 00	1,945	304 80	381	1,395 00	1,395	1,395 00	58	11 60
June.....	454	63 56	2,390	286 80	27	242 80	1,214	100 00	125	555 00	555	555 00	63	12 60
July.....	246	34 44	4,240	508 80	50	162 00	810	84 80	106	251 00	251	251 00	62	12 40
August.....	288	40 32	2,870	344 40	.....	163 60	818	116 80	146	459 00	459	459 00	50	10 00
September..	389	54 46	4,880	585 60	75	354 40	1,772	317 60	397	1,642 00	1,642	1,642 00	95	19 00
October.....	287	40 18	3,720	446 40	.....	301 20	1,506	507 20	634	1,617 00	1,617	1,617 00	42	8 40
November..	251	35 14	5,300	636 00	.....	381 60	1,908	192 00	240	999 00	999	999 00	97	19 40
December...	294	41 16	7,110	853 20	77	260 40	1,302	37 60	47	312 00	312	312 00	40	8 00
1939														
January.....	333	46 62	3,850	462 00	87	292 00	1,460	124 80	156	450 00	450	450 00	51	10 20
February....	237	33 18	5,090	610 80	.....	247 60	1,238	164 80	206	761 00	761	761 00	85	17 00
March.....	394	55 16	6,360	763 20	75	263 80	1,319	70 40	88	660 00	660	660 00	32	6 40
	3,381	473 34	50,690	6,082 80	466	3,450 80	17,254	2,485 60	3,107	10,782 00	10,782	10,782 00	786	157 20

BIOLOGICAL PRODUCTS—DISTRIBUTION BY MONTH—Continued

	DIPHTHERIA SCHICK TEST		TETANUS ANTITOXIN			
	Outfits	Cost	Units	Cost	Syringes	Cost
1938						
April.....	386	\$ 77 20	5,549,000	\$ 1,664 70	186	\$ 37 20
May.....	374	74 80	5,204,000	1,561 20	256	51 20
June	314	62 80	8,832,500	2,649 75	256	51 20
July... ..	322	64 40	10,895,000	3,268 50	206	41 20
August.....	354	70 80	9,467,500	2,840 25	306	61 20
September....	398	79 60	7,996,000	2,398 80	300	60 00
October.....	354	70 80	5,674,500	1,702 35	204	40 80
November.....	528	105 60	6,836,000	2,050 80	212	42 40
December.....	306	61 20	3,695,500	1,108 65	60	12 00
1939						
January... ..	187	37 40	4,231,000	1,269 30	168	33 60
February.....	505	101 00	3,401,000	1,020 30	50	10 00
March.....	299	59 80	3,497,000	1,049 10	100	20 00
	4327	865 40	75,279,000	22,583 70	2,304	460 80
					157	70 65

BIOLOGICAL PRODUCTS—DISTRIBUTION BY MONTH—Continued

	SCARLET FEVER ANTITOXIN					DICK TEST		SCARLET FEVER TOXIN				
	Prophy-lactic	Cost	Treat-ments	Cost	Syringes	Cost	Dick Test	Cost	One Person	Cost	Six Persons	Cost
1938												
April.....	887	\$ 665 25	372	\$ 1,023 00	6	\$ 97 40	487	\$ 168 60	562	\$ 415 00	415	\$ 415 00
May.....	545	408 75	226	621 50	125	84 20	421	111 90	373	240 00	240	240 00
June.....	781	585 75	303	833 25	37	47 40	237	123 90	413	202 00	202	202 00
July.....	436	327 00	155	426 25	25	81 40	407	102 00	340	202 00	202	202 00
August.....	713	534 75	298	819 50	25	69 80	349	153 30	511	137 00	137	137 00
September.....	666	499 50	243	668 25	100	128 20	641	186 30	621	673 00	673	673 00
October.....	756	567 00	406	1,116 50	112	86 80	434	207 00	690	605 00	605	605 00
November.....	1,015	761 25	580	1,595 00	100	147 00	735	286 20	954	769 00	769	769 00
December.....	1,294	970 50	580	1,595 00	300	144 00	720	272 40	908	435 00	435	435 00
1939												
January.....	1,432	1,074 00	666	1,831 50	162	146 80	734	242 10	807	624 00	624	624 00
February.....	1,370	1,027 50	613	1,685 75	150	162 80	814	258 90	863	462 00	462	462 00
March.....	657	492 75	331	910 25	150	148 80	744	222 00	740	636 00	636	636 00
	10,552	7,914 00	4,773	13,125 75	1,292	1,344 60	6,723	2,334 60	7,782	5,400 00	5,400	5,400 00

INSULIN—DISTRIBUTION BY MONTH.

	INSULIN						
	Unmodified				Protimine Zinc		Cost
	200 Units	400 Units	800 Units	1000 Units	400 Units	800 Units	
1938							
April.....	1,175	4,390	337	.....	5,860	....	\$ 5,034 50
May.....	1,325	4,875	222	.....	1,925	....	5,305 63
June.....	700	3,600	415	.....	2,055	....	4,593 63
July.....	1,250	4,775	399	.....	2,375	....	5,761 88
August.....	1,025	3,675	310	.....	2,680	....	5,078 00
September.....	1,365	4,665	355	.....	1,380	....	4,954 25
October.....	960	3,483	360	.....	1,410	2	4,075 00
November.....	920	4,085	280	60	2,300	....	5,084 75
December.....	1,250	4,621	349	36	2,070	....	5,432 15
1939							
January.....	1,150	4,395	436	36	2,215	....	5,464 13
February.....	1,095	4,385	250	36	2,175	....	5,176 88
March.....	1,100	3,385	175	72	2,232	....	4,530 20
	13,315	50,334	3,888	240	24,677	2	\$ 60,491 00

STATEMENT OF BIOLOGICAL PRODUCTS AND INSULIN—Continued

SUMMARY 1938-1939

DIPHTHERIA:

Antitoxin.....	3,381 M units at.....	\$ 0.14 per M units.....	\$ 473 34	
	50,690 M units at.....	.12 per M units.....	6,082 80	
			<u>\$ 6,556 14</u>	
Schick Test.....	4,327 Outfits at.....	.20 each.....	865 40	
Toxoid.....	17,254 x 1 person at.....	.20 each.....	3,450 80	
	3,107 x 6 persons at.....	.80 each.....	2,485 60	
	10,782 x 12 persons at.....	1.00 each.....	10,782 00	
	786 Diluted at.....	.20 each.....	157 20	
			<u>17,741 00</u>	<u>\$ 24,297 14</u>

TETANUS:

Antitoxin.....	75,279,000 units at.....	\$ 0.30 per M units.....	\$ 22,583 70	
Intraspinal Outfits.....	157 outfits at.....	.45 each.....	70 65	
			<u>22,654 35</u>	

SCARLET FEVER:

Antitoxin.....	10,552 prophylactic doses at.....	\$ 0.75 each.....	\$ 7,914 00	
	4,773 treatment doses at.....	2.75 each.....	13,125 75	
			<u>\$ 21,039 75</u>	
Dick Test	6,723 outfits at.....	.20 each.....	1,344 60	
Toxin.....	7,782 x 1 person at.....	.30 each.....	2,334 60	
	5,400 x 6 persons at.....	1.00 each.....	5,400 00	
			<u>9,079 20</u>	<u>30,118 95</u>

ANTI-MENINGOCOCCUS:

Serum.....	1,569 x 20 cc vials at.....	\$ 1.00 each.....	\$ 1,569 00	
Intraspinal Outfits.....	250 at.....	.45 each.....	112 50	
			<u>\$ 1,681 50</u>	

SMALLPOX:				
Vaccine.....	8,465 x 2 point packages at.....\$ 0.12 per package.....	\$ 1,015 80		
	180,985 points at..... 4.5 per point.....	8,144 32		
			9,160 12	
RABIES:				
Vaccine.....	27 treatments at.....\$10.50 each.....	\$ 283 50		283 50
ANTI-ANTHRAX:				
Serum.....	4 x 50 cc vials at.....\$ 1.75 each.....	\$ 7 00		7 00
	COST OF BIOLOGICAL PRODUCTS			\$ 88,202 56
	Cost of Syringes: 4,062 at 20c			812 40
	Less Sale of Syringes: 4,062 at 20c.....			\$ 89,014 96
				812 40
	NET COST OF BIOLOGICAL PRODUCTS.....			\$ 88,202 56
INSULIN.....				
	13,315 x 200 units vials at.....\$ 0.35 each.....	\$ 4,660 25		
	50,334 x 400 units vials at..... .65 each.....	32,717 10		
	3,888 x 800 units vials at..... 1.25 each.....	4,860 00		
	240 x 1000 units vials at..... 1.50 each.....	360 00		
	24,677 x 400 units P. Z. at..... .72½ each.....	17,890 85		
	2 x 800 units vials P.Z. at 1.40 each.....	2 80		
	COST OF INSULIN.....			\$ 60,491 00
	TOTAL COST OF BIOLOGICAL PRODUCTS AND INSULIN.....			\$ 148,693 56

COMPARATIVE STATEMENT SHOWING COST OF BIOLOGICAL PRODUCTS AND INSULIN, 1926-1939

Fiscal Year	Diphtheria		Scarlet Fever		Tetanus Antitoxin	Anti-men- ingococcus Serum	Anti- Anthrax		Smallpox Vaccine	Rabies Vaccine	Biological Totals	Insulin		Total Costs
	Antitoxin	Toxoid	Antitoxin	Toxin			\$	C				\$	C	
1926-27	\$ 40,747 00	\$ 14,342 20	\$ 23,159 50	\$ 4,659 00	\$ 9,322 05	\$ 1,578 35			\$ 8,212 58	\$ 585 00	\$ 102,605 68	\$ 46,567 10	C	\$ 149,172 78
1927-28	35,407 02	10,427 40	20,595 50	3,483 70	10,518 00	1,632 40			13,711 73	4,728 59	100,504 34	48,943 60	60	149,447 94
1928-29	41,027 72	9,771 80	21,063 75	3,319 50	14,022 00	3,588 45			7,144 60	2,000 25	101,968 57	55,727 48	48	157,696 05
1929-30	46,784 30	9,486 40	34,031 45	5,287 30	15,171 75	3,452 15			7,892 65	1,638 00	123,744 00	62,728 16	16	186,472 16
1930-31	36,696 96	14,113 40	32,589 15	5,498 90	17,092 50	2,594 85			6,300 03	819 00	117,704 79	71,291 82	82	188,996 61
1931-32	27,217 73	20,874 16	22,115 82	4,316 25	17,872 34	2,526 45			4,495 83	411 07	99,829 68	84,367 15	15	184,196 83
1932-33	12,698 80	16,175 84	19,451 68	3,987 15	16,411 01	1,692 24			3,719 20	937 65	75,073 57	94,274 28	28	169,347 85
1933-34	12,797 38	14,482 68	27,971 97	5,287 77	19,529 70	1,593 75			5,617 34	418 95	87,699 54	102,517 65	65	190,217 19
*1934-35	5,077 50	5,286 20	14,203 20	3,069 70	6,266 40	569 40	7 00		2,638 75	94 50	37,212 65	44,517 45	45	81,730 10
1935-36	10,419 34	12,912 40	32,766 90	6,881 40	21,989 55	1,485 95	1 75		5,639 65	388 50	92,485 44	84,580 71	71	177,066 15
1936-37	8,576 36	14,783 40	23,867 25	6,745 50	20,715 15	1,760 95	10 50		5,342 98	252 00	82,054 09	60,252 40	40	142,306 49
1937-38	8,666 94	15,363 60	22,027 25	7,910 50	24,340 80	1,863 15	7 25		5,524 29	504 00	86,423 78	60,485 12	12	146,908 90
1938-39	6,556 14	17,741 00	21,039 75	9,079 20	22,654 35	**Typhoid- 1,681 50	7 00	paratyphoid	9,160 12	283 50	88,202 56	60,491 00	00	148,693 56

*November, 1934 to March, 1935. **Purchased in addition to the amount supplied by the Laboratory.

DIVISION OF VENEREAL DISEASE CONTROL

A. L. MCKAY, B.A., M.B., D.P.H., Director.

On account of the increased importance being placed on the control of venereal diseases, a separate division was established in April. Formerly the activities were carried on under the Division of Preventable Diseases. This creation of a separate division has been of distinct advantage in allowing a concentration of effort in control measures.

In order to have a more complete knowledge of the incidence of syphilis and gonorrhoea, it was decided that some better means of reporting should be evolved. Opportunity was given through district meetings of the Ontario Medical Association to discuss this matter with the profession at Peterborough, Cobourg, Owen Sound, Hamilton and Windsor. Proposals were made for substitution of central reporting for that previously in force, which was to the Medical Officer of Health. It was also suggested that in reported cases of syphilis a regular enquiry by the Division would be made to ensure that adequate sustained treatment was being carried out. Both of these suggestions met with the approval of the profession and the regulations were amended to take care of these changes. Cases of both syphilis and gonorrhoea are now reported by the medical practitioner directly to the Division of Venereal Diseases Control by giving the initials of the patient, date of birth, sex and marital status. There is a follow-up made on each case of syphilis every four months and when it is found that a patient has discontinued treatment against advice, the medical officer will take the necessary action to have such patient returned for regular treatment. Further amendments to the present regulations are being made to assure insofar as possible that all patients suffering from syphilis will continue under treatment until cured.

In the nineteen venereal disease clinics operated by the department, the work has progressed satisfactorily. A statistical summary of the work follows and indicates that treatment has been administered to more than 10,000 patients. Several drugs have been added to those available for free distribution to the clinics. After more than three years of satisfactory experience in the clinics, Mapharsen was included with Novarsan for distribution to the profession. For the clinics tryparsamide and sulphapyridine were also added.

For those clinics whose volume of work had increased to warrant it, nine additional assistant physicians were added and the honorarium increased for those assistant physicians who had been previously appointed. Changes in the personnel of the social service nurses at Owen Sound, Sault Ste. Marie, Sudbury and Fort William also were made.

A one-day conference of all clinic directors was held in October, where papers were presented on the more recent advances in diagnostic methods and treatment. The papers presented were distributed with the discussion to all those who had attended. Considerable discussion took place as to the role the Division could play in assisting the military authorities in the control of venereal disease amongst the civilian population as it affected the militia. A scheme was worked out whereby sources of infection for cases discovered amongst the military forces were promptly reported to the Medical Officer of Health for examination and treatment. In the case of vagrants, or those found in bawdy houses, arrangements were completed with the Crown Attorneys

to have such individuals held in custody until examination for venereal disease was completed. If found infected the Medical Officer of Health ordered their detention in custody for treatment. This co-operation has been most satisfactory.

The results of fever therapy at the Ontario Hospital, Toronto, have been so encouraging that centres are now being established in the venereal disease clinics at London and Kingston to serve those cities and the surrounding areas. Trained nursing personnel is being supplied to the clinics to carry out this treatment.

The total number of patients treated in the clinics remained approximately the same as in the previous year. The number of treatments given were less due largely to the decreased number of attendances necessary for the treatment of gonorrhoea with the substitution of sulphanilamide and sulphapyridine therapy for local treatment. At one of the clinics a six-day course of sulphapyridine therapy has given excellent results and has been recommended for adoption in the other clinics.

The number of patients discharged from the clinics as cured increased by ten per cent. over the previous year, and the number of patients lost before adequate treatment was given, although remaining at 1195 cases, was a reduction of ten per cent. over the number lost during the previous year. More stringent regulation requiring uninterrupted treatment should further reduce this figure in the future.

The increase in the number of cases of early syphilis (primary and secondary stages) to 581 over a figure of 419 in the previous year is of importance. This would indicate either an increase in the incidence of infectious syphilis or better use was being made of the clinics by the infectious patient applying for treatment for the infection when the best chance for favourable outcome is obtainable.

A summary of the work in the clinics follows:

Treatment for Syphilis:

Diarsenol.....	2,587
Novarsan.....	19,478
Mapharsen.....	21,423
Tryparsamide.....	2,538
Other Arsenicals.....	240
Mercury.....	1,916
Bismuth.....	48,024
Medicines.....	9,411
Other and advice.....	5,092

Treatment for Gonorrhoea:

Irrigations.....	42,940
Douche.....	1,285
Injections.....	7,054
Prostatic Massage.....	4,945
Instrumentation.....	915
Deep Instillation.....	1,498
Topical Applications.....	6,956
Vaccine.....	772
Examinations.....	2,878
Medicines, Sulphanilamide and Dagenan.....	7,956

Summary of Clinic Activities:

1. Number carried over from previous year.....	6,218
2. Number of new cases (never previously treated in clinic).....	2,692
3. Number of cases re-admitted.....	887
4. Number of previously treated patients.....	789

5. Number of cases treated.....	10,586
6. Number of treatments.....	145,921
7. Number of contacts and sources examined.	845
8. Number of visits made by nurses.	4,571

Analysis of the above figures:

New cases (never previously treated in clinic).....	2,692
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	Male	Female
Syphilis	635	398
Gonorrhoea.....	1,133	418
D. I.....	61	47

Number of cases re-admitted.....	887
----------------------------------	-----

	Male	Female
Syphilis.	270	154
Gonorrhoea.....	331	63
D. I.	53	16

Number of cases previously treated.....	789
---	-----

	Male	Female
Syphilis.....	320	160
Gonorrhoea.....	219	55
D. I.	23	12

Number of new and previously treated cases of Syphilis classified.....	1,489
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	Male	Female
Primary.....	196	66
Secondary.....	162	157
Tertiary.....	575	333

Number of new and previously treated cases of Gonorrhoea classified.	1,967
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	Male	Female
Under 1 month.....	1,150	253
Under 2 months.....	121	107
Over 2 months.....	171	165

Number of paid treatments.....	145,921
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	Male	Female
Syphilis.....	57,606	37,016
Gonorrhoea.....	40,812	10,487

Number of contacts and sources examined.....	845
--	-----

Positive for Syphilis.	106
Positive for Gonorrhoea.....	104

Number of children treatments.....	6,318
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	Male	Female
Syphilis.....	2,578	2,406
Gonorrhoea.....	225	1,109

Number discharged from clinics.	4,367
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Number discharged apparently cured.	2,309
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	Male	Female
Syphilis.....	371	214
Gonorrhoea.....	1,241	373
D. I.	73	37

Number discharged without permission.....	1,195
---	-------

	Male	Female
Syphilis.....	394	180
Gonorrhoea.....	474	89
D. I.	37	21

Number transferred.....	863
-------------------------	-----

	Male	Female
Syphilis.....	320	164
Gonorrhoea.....	234	101
D. I.	26	18
Social Histories taken in clinics.....		3,716
Cases referred by:—Doctors, 756; self, 1,282; friends, 145; hospitals, 547; Other clinics, 424; social agency, 78; Department of Health, 253; jails, 59; re-admissions, 145; police, 27.		
Number of cases referred to M. O. H.....		1,169
Sources.....	194	
Contacts.....	128	
Non-attendance.....	847	
Number of cases placed under V.D. Act.....		132
Number of cases prosecuted under V.D. Act		57
Analysis by Age Groups of New Admissions.....		3,480
	Male	Female
Under 16 years.....	37	98
16–19 years.....	135	154
20–29 years.....	1,049	480
30–39 years.....	569	235
Over 40 years.....	574	149
Number of patients treated in hospitals where clinics are situated.....		822
	Male	Female
Syphilis.....	183	114
Gonorrhoea.....	241	284
Number of days in hospital.....		11,517
Laboratory Examinations:		
	Positive	Negative
Syphilis:		
Blood.....	5,483	8,344
Cerebro Spinal fluid.....	143	338
Darkfield.....	83	96
Gonorrhoea:		
Diagnosis	1,984	6,378
Prognosis.....	2,465	5,113
Correspondence has been carried out for follow-up through the Medical Officers of Health of contacts, sources of infection and removals from one municipality to another as follows:		
Number of cases referred for follow-up.....		801
Receiving treatment or negative.....	377	
Lost, including no reply from M. O. H.....	135	
Doubtful as to whether or not treatment is being continued (including those removed to other provinces).....	56	
	—	568
Of the above, the following number were reported as sources of infection:		
Positive.....	29	
Negative.....	28	
Lost	29	
Number of contacts of 51 patients referred by the Ontario Hospitals		111
Positive.....	15	
Negative	76	
Lost or refused examination.....	20	
Number incomplete fyles and carried over to 1940.....		122

DIVISION OF TUBERCULOSIS PREVENTION

G. C. BRINK, M.B., *Director.*

Despite the efforts that have been put forth by official and voluntary agencies toward the control of tuberculosis, this disease remains a major public health problem in that—

- (a) Tuberculosis still ranks as the second highest cause of death in persons between 15 and 39 years of age, being exceeded only by accidents.
- (b) More than 85% of the patients admitted to sanatoria with pulmonary tuberculosis have moderately advanced or far advanced disease.
- (c) The economic loss to the Province of Ontario because of morbidity and premature death, caused by tuberculosis, is difficult to estimate, but the direct cost amounts to approximately three and one-half million dollars per year.

The tuberculosis death rate in Ontario reached its lowest point in 1938, viz., 33.1 per 100,000 population; this figure compares with a tuberculosis death rate of 54.7 for Canada during the same year.

Although there has been a steady decline in the tuberculosis death rate since 1930, it can be anticipated that to bring about a continuance of the decrease, greater efforts will be required than were necessary in earlier years. By such efforts we refer to:

A. Greater Diagnostic Facilities.

- (1) Tuberculosis surveys of apparently healthy individuals, particularly the age group 20 to 40 years.
- (2) The making of chest X-ray films more easily available by lowering the cost to the public.
- (3) The taking of routine chest X-ray films of all persons admitted to public hospitals.
- (4) More frequent visits by diagnostic chest clinics to certain sections of the Province.

B.

More education of the public as to the various aspects of tuberculosis, namely, prevention, early detection and the value of prompt sanatorium treatment.

C.

An increase in sanatorium beds in certain sections of the Province to make possible sanatorium treatment for all individuals suffering from active pulmonary tuberculosis (see Tables XVI. to XIX).

D.

More prompt and adequate reporting of all cases of tuberculosis by family physicians and medical officers of health.

Since the Amendments to *The Sanatoria for Consumptives Act* came into effect on July 1, 1938, there has been an opportunity to observe the results which can reasonably be attributed to this legislation. Among some of the outstanding results the following should be mentioned:

(a) A much shorter time now elapses between the time of diagnosis and the time of admission to sanatorium due chiefly to the Provincial Government relieving the municipalities of their former maintenance charges.

(b) Patients may now be discharged after a shorter stay in sanatorium, due chiefly to the responsibility for the provision of aftercare being definitely placed by the new legislation upon the municipalities, as well as the increased facilities for pneumothorax treatments upon ex-patients of sanatoria.

(c) The number of re-admissions to sanatoria in the year ending September 30, 1939, was 386 as against 504 in the year ending September 30, 1937. This condition is, without doubt, the result of the improved care now provided for patients upon discharge from sanatorium.

(d) Approximately 10% more patients were treated in Ontario sanatoria during the hospital year ending September 30, 1939, than in the last full hospital year under the old legislation.

(e) There is a more equitable distribution of the costs of treating tuberculosis throughout the Province.

(f) Patients in sanatoria are now relieved of a greater extent of the financial worry associated with their treatment. The present system permits a patient to retain certain assets in order that he may be in a better position to rehabilitate himself following discharge.

During the last year the following advances were made in the programme for the prevention of tuberculosis:

(a) In March, 1939, the Provincial Department of Health placed tuberculin for diagnostic purposes upon the free list for distribution to physicians, hospitals and clinics. Up to the end of December, 1939, 766 physicians, 62 hospitals and 9 clinics (not departmental) were supplied with tuberculin under this arrangement. In all, 8,890 cc's of tuberculin solution were distributed.

(b) Provision was made for the compulsory examination of persons suspected of having tuberculous disease by further Amendments to *The Sanatoria for Consumptives Act* passed in the spring of 1939.

REPORT OF THE WORK DONE BY THE TRAVELLING CHEST CLINICS

During 1939 Travelling Chest Clinics have operated with headquarters in Toronto, Ottawa, Belleville, Timmins and North Bay. The Fort William clinic was closed during the year, but the clinic from Toronto visited 11 centres in north-western Ontario in July and August, examining 820 persons; the report of this work is included in the report of the Central Clinic.

Clinics were conducted in 84 centres; 4 centres were visited for the first time.

The unit, with headquarters in Toronto, conducted 31 clinics in the following centres: Brockville (3), Peterborough (3), Owen Sound (3), Oshawa (3), and one in each of the following: Collingwood, Ridgetown, Aylmer, Tillsonburg, Hanover, Amherstburg, Midland, Penetang, Newmarket, Lindsay, Leamington, Palmerston, Listowel, Wiarton, Kincardine, Flesherton, Meaford,

Shelburne and Orangeville; also 11 clinics in north-western Ontario—Schreiber, Nipigon, Geraldton, Armstrong, Sioux Lookout, Dryden, Kenora, Emo, Rainy River, Fort Frances and Fort William.

The Unit, with headquarters in Ottawa, conducted 36 clinics in the following centres: Ottawa (12), Pembroke (2), Eganville (2), Prescott (2), Smith's Falls (2), Hawkesbury (2), Perth (2), Renfrew (2), Plantagenet (2), and one in each of the following: Arnprior, Bourget, Rockland, Casselman, Kemptville, Carleton Place, and Almonte.

The Unit, with headquarters in Timmins, conducted 15 clinics in the following centres: Hearst (2), Larder Lake (2), Englehart (2), Kapuskasing (2), Smooth Rock Falls (2), Cochrane (2), Iroquois Falls (2), Englehart (2), and Moonbeam (1).

Clinics were held in Timmins three days each week for 35 weeks.

In addition to the regular clinic work, 152 pneumothorax refills were given to ex-sanatorium patients at this centre.

The Unit, with headquarters in North Bay, conducted 41 clinics in the following centres: North Bay (12), Sudbury (3), Sturgeon Falls (2), Mattawa (2), Sault Ste. Marie (2), Blind River (2), Thessalon (2), Bruce Mines (2), Richard's Landing (2), and one in each of the following: Verner, Parry Sound, Chapleau, Capreol, South River, Burk's Falls, Huntsville, Gore Bay, Mindemoya, Little Current, Espanola and Manitowaning.

In addition to the regular clinic work, 85 pneumothorax refills were given to ex-sanatorium patients at this centre.

The Unit, with headquarters in Belleville, conducted 28 clinics in the following centres: Belleville (11), Wellington (2), Cobourg (2), Napanee (2), and one in each of the following: Port Hope, Picton, Colborne, Tweed, Madoc, Hastings, Campellford, Haliburton, Bancroft, Stirling and Marmora.

In addition to the regular clinic work, 432 pneumothorax refills were given to ex-sanatorium patients at this centre.

The following tables give a summary of the work done:

Table I, General Summary.

Tables II, III and IV give details in respect to newly discovered cases of tuberculosis.

Tables V and VI give details in respect to persons recommended for sanatorium treatment.

Table VII gives details regarding changes in diagnoses made in repeat examinations.

Table VIII gives details regarding the present condition of ex-sanatorium patients examined at the clinics.

TABLE I
SUMMARY OF CLINIC WORK

		Toronto	Ottawa	Belle-ville	Tim-mins	North Bay	TOTALS
1. Pulmonary Tuberculosis.....	1st Ex. Repeat	188 434	86 340	76 242	93 274	116 378	559 1668— 2227
(a) Regarding Activity—Active	1st Ex. Repeat	82 53	34 43	38 35	45 32	80 105	279 268— 547
Inactive.....	1st Ex. Repeat	106 381	52 297	38 207	48 242	36 273	280 1400— 1680
(b) Regarding Discovery Cases previ- ously diagnosed.....	1st Ex. Repeat	98 409	33 317	22 236	36 262	27 357	216 1581— 1797
Newly discovered Cases.....	1st Ex. Repeat	90 25	53 23	54 6	57 12	79 21	333 87— 420
(c) Regarding Extent of Disease, Child- hood (all types).....	1st Ex. Repeat	18 38	5 23	4 13	6 63	10 46	43 183— 226
Minimal.....	1st Ex. Repeat	70 184	43 207	28 108	39 117	42 182	222 801— 1023
Moderately Advanced.....	1st Ex. Repeat	78 169	30 96	30 97	34 72	32 98	204 532— 736
Advanced.....	1st Ex. Repeat	22 43	8 14	14 24	14 22	32 52	90 155— 245
2. Extra Pulmonary Tuberculosis.....	1st Ex. Repeat	13 4	2 2	1 0	5 0	3 0	24 6— 30
3. Presumptive Evidence or Suspected Tuberculosis.....	1st Ex. Repeat	24 19	11 7	8 12	18 19	24 22	85 71— 156
4. Recommended for Sanatorium.....	1st Ex. Repeat	64 39	18 39	34 24	44 23	67 86	227 211— 438
5. Non-Tuberculous Chest Disease.....	1st Ex. Repeat	120 57	80 57	82 54	67 42	48 50	397 260— 657
6. No Disease.....	1st Ex. Repeat	1936 1241	1085 764	1116 467	1366 698	1429 807	6932 3977—10909
7. Totals.....	1st Ex. Repeat	2281 1747	1264 1170	1283 775	1549 1033	1620 1257	7997 5982—13979
Total Number of Examinations.....		4028	2434	2058	2582	2877	13979

TABLE II
CLASSIFICATION OF NEWLY DISCOVERED CASES
Total 420

Age Groups	Totals		History of Contact	CHILDHOOD				MINIMAL				Moderately Advanced				Advanced				Pleurisy with Effusion		Tuber- culous Adenitis																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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TABLE III

TABLE SHOWING RELATION OF NUMBER OF NEW CASES OF TUBERCULOSIS DISCOVERED TO NUMBER OF CONTACTS EXAMINED FOR FIRST TIME.

AGE GROUPS	Number Contacts Examined for First Time	Number of Cases of Tuberculous Disease Discovered	Percentage of Contacts Examined Showing Disease %
0 to 9	632	19	3.
10 to 19	862	26	3.
20 to 29	1035	34	3.2
30 to 39	599	20	3.3
40 to 49	303	18	5.9
50 and over	272	22	8.
Totals	3703	139	3.7

TABLE IV
SUMMARY OF NEWLY DISCOVERED CASES

CLASSIFICATION	Number	Percentage of Total %	Percentage of Number with Adult Type of Disease %
Pulmonary—			
Childhood type.....	52	12.4	.....
Minimal.....	193	46.0	52.4
Moderately Advanced...	114	27.1	31.2
Advanced.....	57	13.6	15.4
Extra Pulmonary.....	4	.9	.....
Total.....	420	100.	100.

Remarks on Tables II, III and IV.

1. Although the number of examinations was approximately the same as in 1938, the number of newly discovered cases of tuberculosis decreased from 707 in 1938, to 420 in 1939. This is accounted for to some extent by less clinic work being carried out among Treaty Indians; out of the 707 new cases in 1938, 253 were Indians, while in 1939 only 35 were Indians. This shows a decrease from 454 new cases, among the whites in 1938, to 385 in 1939, viz., a decrease of 15.2%.
2. 206 of the newly discovered cases gave a history of contact with tuberculosis while 214 gave no history of contact.
3. 227 or 54% of the newly discovered cases were recommended for sanatorium treatment; the majority of the remainder were considered to have inactive disease.
4. The precentage of new cases discovered in the minimal stage still remains over 50% of those of the adult type.
5. Of the 206 cases of tuberculosis discovered in the contact group, 136 or 66% attended the clinic because of contact only and with no symptoms.

TABLE V
CLASSIFICATION OF PATIENTS RECOMMENDED FOR SANATORIUM TREATMENT—Total 438

1st—1st Exam.

R.—Repeat Exam.

Age Groups	Totals		History of Contact	Suspects				Childhood				Minimal				Moderately Advanced				Advanced				Non-Pulmonary Tuberculosis						Silicosis	
	Totals			Suspects		Active		Inactive		Active		Inactive		Active		Inactive		Active		Inactive		Pleurisy with Effusion		Tbc. Spine		Tbc. Adenitis		Silicosis			
	1st	R.		1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.		
0 to 9	9	4	+	...	...	7	3	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
	2	2	—	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
10 to 19	25	39	+	1	1	3	3	...	2	10	14	...	2	1	14	...	...	6	3	...	...	3	...	...	...	1	...	...	...		
	23	13	—	1	1	1	2	...	...	9	5	...	...	4	3	...	...	6	1	...	...	2	1	...	...	...	...	...	...		
20 to 29	28	41	+	1	...	...	...	...	1	13	13	...	1	7	9	...	2	4	15	...	...	1	...	...	...	...	...	...	...		
	39	32	—	1	1	...	...	...	...	9	5	...	...	13	17	...	...	15	8	...	...	...	...	...	...	...	...	...	...		
30 to 39	12	18	+	...	1	...	...	...	...	5	9	...	...	4	6	...	2	2	10	...	...	...	...	...	...	...	...	...	...		
	34	14	—	...	...	...	...	...	1	8	4	...	1	19	2	...	...	7	6	...	...	...	...	...	...	...	...	...	...		
40 to 49	3	9	+	...	1	...	...	...	...	...	...	...	...	2	5	...	1	...	2	...	...	...	...	...	...	...	...	...	...		
	22	15	—	...	...	...	...	...	...	6	3	...	...	9	9	...	...	7	3	...	...	...	...	...	...	...	...	...	...		
50 and over	5	5	+	...	...	...	...	...	...	1	...	...	...	3	2	...	...	1	3	...	...	...	...	...	...	...	...	...	...		
	25	9	—	...	...	...	...	...	...	...	...	...	...	8	4	...	...	17	4	...	...	...	...	...	...	...	...	...	1		
	227	211	+208	2	3	10	6	...	2	30	37	...	3	17	36	...	5	14	33	...	1	...	...	...	...	...	...	...	0		
	....	....	—230	2	2	1	2	...	0	32	17	...	1	54	37	...	0	53	22	...	1	...	...	...	...	...	...	1			
	....	....	438	4	5	11	8	...	2	62	54	...	4	71	73	...	5	67	55	...	1	...	...	...	...	...	...	...	1		

TABLE VI

SUMMARY OF ALL CASES RECOMMENDED FOR SANATORIUM
TREATMENT

CLASSIFICATION	Number	Percentage of Total %	Percentage of Number with Adult Type of Disease %
Pulmonary—			
Childhood type.....	21	4.8	.....
Minimal... ..	120	27.4	30.2
Moderately Advanced...	152	34.7	38.3
Advanced.....	125	28.5	31.5
Pleurisy with Effusion....	7	1.6	.....
Extra Pulmonary Tuber- culosis.....	3	.7	.....
Suspects.....	10	2.3	.....
Total.....	438	100.	100.

TABLE VII
CHANGES IN DIAGNOSIS ON REPEAT EXAMINATIONS
DIAGNOSIS AT CLINIC EXAMINATION IN 1939

	Total	No Change	No Disease	Suspects	Childhood		Minimal		Moderately Advanced		Advanced		Thickened Pleura	Pleurisy with Effusion	Bronchiectasis	Other Non-Tuberculous Lung Condition
					Active	Inactive	Active	Inactive	Active	Inactive	Active	Inactive				
No Disease.....	3973	3870	....	23	6	7	18	22	6	....	2	....	5	2	2	10
Suspects	119	47	40	....	2	4	6	12	2	1	....	....	3	....	....	2
Inactive... Childhood	148	121	22	....	1	....	2	....	....	1	....	....	....	....	1	....
Active.....	36	20	2	....	....	11	....	1	1	....	....	....	1	....	....	....
Inactive... Minimal	684	627	26	....	....	....	11	....	13	4	1	....	1	....	....	....
Active.....	77	27	5	1	....	1	....	39	2	....	2	....	....	....	....	....
Inactive... Moderately Advanced	439	406	1	....	....	....	....	6	19	....	7	....	....	....	....	....
Active.....	90	43	....	....	....	....	....	12	....	26	7	....	....	1	1	....
Inactive... Advanced	77	73	....	....	....	....	....	....	....	1	3	....	....	....	....	....
Active.....	64	51	....	....	....	....	....	....	....	4	....	8	....	1	....	....
Thickened Pleura.....	105	91	10	....	....	....	1	1	....	....	....	....	....	....	....	2
Pleurisy with Effusion.....	18	7	4	....	....	....	....	....	1	....	....	....	6	....	....	....
Bronchiectasis	30	29	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Other Non-Tbc. Lung...	114	92	14	....	....	....	1	1	1	1	....	1	1	....	2	....

PREVIOUS DIAGNOSIS

Remarks on Changes in Diagnoses.

1. Of the 3,973 showing no disease on previous examination, 63 or 1.6% developed some form of tuberculous disease.
2. Of the 1,200 cases of inactive adult type of disease, 54 or 4.5% had become re-activated.
3. Of 119 persons previously classified as suspects, 27 or 22.7% developed some type of tuberculous disease.
4. Of 184 previously diagnosed as childhood type, only 5 or 2.7% developed adult type of disease.
5. Of 761 minimal cases examined in some previous year by the clinics, only 22 or 2.9% extended beyond that stage.
6. Of 90 moderately advanced, active cases examined in some previous year by the clinics, 38 or 42.2% had become inactive.
7. of 77 advanced, active cases examined in some previous year by the clinics, only 12 or 15.5% had become inactive.

TABLE VIII
CLASSIFICATION (on last examination) OF PATIENTS WHO HAD RECEIVED SANATORIUM TREATMENT—Total 895

Age Groups	Sex	No Disease	Suspects	Non-Tuberculous Chest Conditions	Childhood		Minimal		Moderately Advanced		Advanced		Thickened Pleura	Tuberculosis of Spine	Tuberculous Adenitis
					Active	Inactive	Active	Inactive	Active	Inactive	Active	Inactive			
0 to 9	M	3	....	....	....	3	....	1	....	....	....	....	....	....	....
	F	1	....	....	1	1	....	1	....	....	....	....	....	....	....
10 to 19	M	2	...	....	....	3	1	15	....	11	...	....	....	....	....
	F	12	....	....	....	2	....	17	2	6	1	1	1	....	....
20 to 29	M	1	....	3	....	1	2	25	3	56	8	7	3	1	....
	F	10	....	4	....	....	6	61	13	78	4	18	1	1	....
30 to 39	M	8	1	2	....	2	1	37	4	44	3	14	....	....	....
	F	5	3	1	....	....	4	48	3	72	6	9	1	....	....
40 to 49	M	5	1	2	....	....	....	15	3	29	6	12	....	....	....
	F	2	....	....	....	....	1	11	6	37	2	10	....	....	....
50 and Over	M	....	....	....	....	....	1	15	....	25	9	6	1	....	....
	F	....	....	....	....	....	....	8	2	13	1	2	....	....	1
Totals		49	5	12	1	12	16	254	36	371	40	79	7	2	1

Remarks on Patients Examined Who Had Received Treatment in Sanatorium.

1. 885 examinations were conducted on persons who had received treatment in sanatorium.

2. Tuberculosis was no longer considered a factor in the health of 49, or 5.4%.

3. Of the 819 with definite tuberculous disease, 93, or 11.4%, were considered to have active disease and in need of further sanatorium treatment; and 716, or 87.4%, were considered to have inactive disease.

Clinic Work Among Treaty Indians.

Diagnostic work among Treaty Indians was carried out to a lesser extent than in 1938—803 examinations being made.

(a) Surveys were made for the second time of 4 residential schools comprising 493 children.

(b) 310 were referred to the clinics in various centres.

For detailed information see Table IX.

TABLE IX.

RESULTS OF CLINIC EXAMINATIONS OF TREATY INDIANS—1939

FINDINGS	Number	Percentage of Those with Tuberculous Disease	Percentage of Those with Pulmonary Tuberculosis	Percentage of total cases Examined
		%	%	%
I Tuberculous Disease.....	108	.....	.....	13.2
1. Active.....	60	56.6	.....	.....
Inactive.....	48	43.4	.....	.....
2. Cases previously diagnosed.....	73	66.9	.....	.....
New cases discovered.....	35	33.1	.....	.....
3. Pulmonary tuberculosis.....	94	88.6	.....	.....
Childhood type.....	26	.....	26.6	.....
Minimal.....	33	.....	34.0	.....
Moderately advanced.....	21	.....	22.3	.....
Advanced.....	16	.....	17.0	.....
4. Extra-pulmonary tuberculosis.....	12	11.4	.....	.....
5. Recommended for sanatorium.....	51	48.1	.....	6.3
II Suspects.....	15	.....	.....	1.7
III Non-tuberculous chest conditions....	7	.....	.....	.87
IV No evidence of disease.....	683	.....	.....	84.1
Total number examined.....	813	.....	99.9	100.0

Miscellaneous.

1. The Central Office interprets films referred from various agencies, e.g., secondary school surveys, home service training schools, industrial schools and public hospitals. During 1939, 1,216 such films were submitted for interpretation.

2. The Central Office has taken 459 films on patients and staff of the Toronto Psychiatric Hospital.

3. 502 films were taken in the Central Office; 66 on soldiers who were discharged from the army because of chest conditions, 36 on ex-sanatorium patients receiving after-care from this Department, 16 on patients receiving mothers' allowance because of tuberculosis, 14 on applicants for positions in the Department of Health, and 370 on patients referred by physicians for examination and on Departmental staff.

4. The staff of the Division, assisted by physicians from the Ontario Hospitals, examined 1,374 ex-service men for positions as Provincial Police Guards. Each man received a complete physical examination, including an X-ray film of the lungs. 1,274 of the films were taken by this Division.

TUBERCULIN TESTING AND X-RAYING OF NURSES, BOTH NON-GRADUATE AND GRADUATE, IN PUBLIC HOSPITALS, HOSPITALS FOR INCURABLES, AND SANATORIA

This Division continued to collect and tabulate the returns respecting the above work. There is still considerable delay in certain hospitals in carrying out the Regulations in respect to tuberculin testing and X-raying of their nurses; some still wait for the sending out of the forms from the Department before undertaking the work instead of keeping their records up-to-date.

In the Fall of 1938, Regulations were issued under *The Public Hospitals Act* requiring tuberculin testing and X-raying of all members of the hospital staff having contact with patients or with patients' food in the same manner as the nursing staff, i.e., dietitians, maids, orderlies, internes, technicians and masseurs. No detailed reports were requested regarding this additional work for 1939 as the Regulations had been in effect such a short time.

The summary of the findings in respect to nurses is contained in Tables X, XI and XII.

The fact that 29 non-graduate and 11 graduate nurses developed active disease requiring treatment in the past year is strong evidence that tuberculosis is still a major hazard among nurses employed in hospitals and sanatoria.

TABLE X
RECORD OF TUBERCULIN TESTING AND X-RAYING OF NON-GRADUATE NURSES 1938-39

	No. Reported	No. Pos. Reactors	% Pos. Reactors	No. X-Rayed	No. Previously Known Cases T. Bc. Disease	No. Newly Discovered Cases T. Bc. Disease	% of Total with Newly Discovered Disease
Public and Red Cross Hospitals	4488	2409	53.7	2281	11	{ 32 plus 1 suspect 0 0	.69
Hospitals for Incurables.....	78	46	58.9	27	0		.0
Sanatoria.....	109	106	97.2	106	19		.0
	4675	2561	54.7	*2414	30	33	.68

*The difference in the number of positive reactors and the number X-rayed is accounted for by the fact that some probationers were not accepted for training and some third-year students graduated and left the hospital within the 12 months after the last X-ray was taken.

CLASSIFICATION OF DISEASE	DISPOSAL
1. NEWLY DISCOVERED CASES—Total 33.	
*17 minimal, active.....	(a) 12 admitted to sanatorium. (b) 4 returned home under adequate supervision (c) 1 was in hospital for a time and then home.
* 6 moderately advanced, active.....	(a) 5 admitted to sanatorium. (b) 1 returned home.
* 1 primary infection, acute.....	returned home under adequate medical supervision.
* 5 pleurisy with effusion.....	(a) 3 admitted to sanatorium. (b) 1 treated in hospital. (c) 1 returned home under adequate medical supervision.
3 minimal, inactive.....	(a) 2 returned home under adequate medical supervision. (b) 1 remained on duty under adequate medical supervision.
* 1 suspect.	remained on duty under adequate medical supervision.
*(27 newly discovered cases of tuberculosis required treatment).	
2. PREVIOUSLY KNOWN CASES—Total 30.	
* 1 tuberculous peritonitis.....	admitted to sanatorium.
* 1 moderately advanced, active.....	admitted to sanatorium.
20 minimal, inactive.....	all remained on duty under adequate medical supervision.
5 moderately advanced, inactive.....	all remained on duty under adequate medical supervision.
(*2 previously known cases became active and required treatment.)	

TABLE XI
RECORD OF TUBERCULIN TESTING AND X-RAYING OF GRADUATE
NURSES 1938-39

	No. Reported	No. Pos. Reactions	% Pos. Reactors	No. X-Rayed	No. Previously Known Cases T. Bc. Disease	No. Newly Discovered Cases T. Bc. Disease	% of Total with Newly Discovered Disease
Public and Red Cross Hospitals	2430	1816	74.9	1779	9	{ 6 plus 1 suspect 0 5	.26
Hospitals for Incurables.....	154	84	54.4	71	1		.0
Sanatoria.....	502	479	95.4	488	15		1.01
	3086	2379	77.2	2338	25	12	.38

CLASSIFICATION OF DISEASE	DISPOSAL
1. NEWLY DISCOVERED CASES—Total 12.	
*7 minimal, active.....	(a) 2 admitted to sanatorium. (b) 2 treated in hospital. (c) 3 returned home under adequate medical supervision.
*1 moderately advanced, active.....	admitted to sanatorium.
3 minimal, inactive.....	(a) 1 returned home under adequate medical supervision. (b) 2 remained on duty under adequate medical supervision.
1 suspect.....	remained on duty under adequate medical supervision.
*(8 newly discovered cases of tuberculosis required treatment).	
2. PREVIOUSLY KNOWN CASES—Total 25.	
* 1 minimal, active.....	returned home under adequate medical supervision.
* 2 moderately advanced, active.....	(a) 1 admitted to sanatorium. (b) 1 returned home under adequate medical supervision.
17 minimal, inactive..... 3 moderately advanced, inactive... 1 advanced, inactive.....	} all remained on duty under adequate medical supervision.
1 moderately advanced, inactive.....	returned home under adequate medical supervision.
(*3 of the nurses previously known to have tuberculosis became reactivated and required further treatment.)	

TABLE XII

TUBERCULIN TESTING AND X-RAYING OF NURSES IN PUBLIC AND RED CROSS HOSPITALS, HOSPITALS FOR INCURABLES AND SANATORIA
(Comparisons of Returns made in 1937, 1938 and 1939)

	No. Reported	No. Positive Reactors	Percent-Positive Reactors %	No. X-Rayed	No. previously known cases of Tuberculosis reported	No. of newly discovered cases of Tuberculosis	Percentage of total with newly discovered Disease %	No. of new cases in need of active treatment
NON-GRADUATES 1939, 1938, 1937	2278	1646	72.2	1711	12	18	.79	12
	2926	2166	74.3	2161	19	35	1.19	24
	3086	2379	77.2	2338	25	12	.38	8
	4170	1913	45.9	2111	13	26	.62	20
	4808	2351	46.8	2483	9	24	.49	18
	4675	2561	54.7	2414	30	33	.70	27

TUBERCULIN TESTING AND X-RAYING OF STUDENTS IN NORMAL SCHOOLS, THE COLLEGE OF EDUCATION AND THE TECHNICAL TEACHERS' TRAINING COLLEGE

The Division co-operated with the Department of Education once more in tuberculin testing and X-raying of students seeking admission to the above mentioned institutions.

The results are given in Table XIII and compared with results in previous years.

TABLE XIII

Year		No. Enrolled	No. Tubercu- lin Tested	No. Positive Reactors	% Positive Reactors	No. X-Rayed	No. Showing Evidence Active Tubercu- lous Disease	% of Total Enrol- ment
1936	Normal Schools....	.....	1140	330	29.0	330	10	.9
	College of Education.....	.....	297	139	46.8	139	1	.3
1937	Normal Schools....	.....	1059	289	27.2	289	6	.5
	College of Education.....	.....	277	111	40.1	111	0	.....
1938	Normal Schools....	950	841	200	23.7	216	10	1.0
	College of Education.....	317	272	107	38.6	150	0	0
1939	Normal Schools....	1258	1143	259	22.6	293	10	.8
	College of Education.....	293	266	62	23.3	91	0	.....
1938	Technical Teach- ers' Training College.....	19	0	.....	.....	19	0	0
1939	Technical Teach- ers' Training College.....	14	0	.....	.....	14	....	.....

Remarks on Table XIII.

It is interesting to note that the incidence of tuberculous infection among the students both in the Normal Schools and College of Education has decreased each year since this work was first instituted. However, the percentage of those found to have active tuberculous disease has shown no appreciable change.

TABLE XIV

THE AVERAGE COST OF DISCOVERING A CASE OF TUBERCULOUS DISEASE ON FIRST EXAMINATION

(Based on average cost of \$4.34 per Clinic examination)

Age Groups	Number of first Exams.	Total cost of Examinations	Number of cases of Tuberculous disease discovered	Average cost per case	Number of cases discovered requiring Sanatorium Treatment	Average cost of discovering a case requiring Sanatorium Treatment
0 to 9	1035	\$4491.90	28	\$160.42	10	\$449.19
10 to 19	1728	7499.52	51	147.05	36	208.32
20 to 29	2271	9856.14	76	129.68	55	179.20
30 to 39	1428	6197.52	64	96.83	39	158.91
40 to 49	835	3623.90	55	65.89	26	139.38
50 and over	700	3038.00	59	51.45	25	121.52
Totals..	7997	\$34,706.98	333	\$104.22	191	\$181.71

TABLE XV

THE AVERAGE COST OF DISCOVERING A NEW CASE OF TUBERCULOUS DISEASE BY REPEAT EXAMINATION

(Based on average cost of \$4.34 per clinic examination.)

Number of Repeat Examinations.....	4,400
Cost of this service.....	\$19,096.00
Number of new cases discovered.....	87
Average cost per case.....	\$219.50
Number of cases recommended for Sanatorium Treatment.....	36
Average cost of discovering a case requiring Sanatorium Treatment by repeat examination..	\$530.00

THE FREQUENCY OF PREVIOUS SANATORIUM TREATMENT IN PATIENTS DYING OF TUBERCULOSIS

In 1930 and 1936, and again in 1938, follow-up studies were conducted with the co-operation of the staffs of Ontario sanatoria in order to determine the proportion of persons dying of tuberculosis who had had the benefit of sanatorium treatment within five years of death. Some of the data available for 1938 are presented in the following sections:

In Table XVI is given a summary of the findings of the 1938 survey for all cases as well as for pulmonary cases only. A separate tabulation has been made for Indians alone for comparison with the rest of the population.

TABLE XVI
HISTORY OF SANATORIUM TREATMENT WITHIN FIVE YEARS OF DEATH
IN PERSONS DYING OF TUBERCULOSIS IN ONTARIO IN 1938

PLACE OF RESIDENCE	WHITES AND INDIANS					
	ALL FORMS			PULMONARY ONLY		
	Number of Deaths	Number Treated in Sanatorium	%	Number of Deaths	Number Treated in Sanatorium	%
Districts*	191	63	32.9	157	63	40.1
Counties*	406	193	47.5	344	190	55.2
Cities and Towns, 5,000 and over.....	655	428	65.3	579	414	71.1
Totals.....	1252	684	54.6	1080	667	61.7
			INDIANS			
Districts*	93	6	6.5	77	4	5.2
Counties*	26	4	15.3	24	4	16.7
Cities and Towns, 5,000 and over.....	0	.....	.....	0	.....	.....
Total.....	119	10	8.2	101	8	7.9
			WHITES			
Districts*	98	57	57.5	80	59	73.7
Counties*	380	189	49.7	320	186	58.0
Cities and Towns, 5,000 and over.....	655	428	65.3	579	414	71.1
Total.....	1133	674	59.4	979	659	67.3

*Excluding Cities and Towns of 5,000 and over.

Before commenting on the figures in Table XVI, it is emphasized that in the survey for 1930, only 40 per cent. of all persons (White and Indian) who died of tuberculosis (all forms) had received treatment in a sanatorium in the five years prior to death, while in 1936 the proportion had risen to 49.1 per cent. The 1938 figures show that still only 54.6 per cent. of persons dying with tuberculosis had had the benefit of sanatorium care within five years of death. For pulmonary cases alone the percentage was 61.7.

For the *white* population alone the percentage of those dying of tuberculosis in 1936, who had been treated in sanatorium within five years prior to death, was 54.0 per cent. In 1938 the figure was 59.4 per cent. for all cases and 67.3 per cent. for pulmonary cases only, one-third of those dying, therefore, not having had the benefit of sanatorium treatment within five years before death. A further point emphasized by the figures for this group in Table XVI is the low proportion of tuberculosis deaths (all forms) in non-urban parts of counties in which there was a history of previous sanatorium care—49.7 per cent. compared with 65.3 per cent. in urban areas.

Among *Indians* alone only 6 of 107 dying of tuberculosis in 1936 had been in a sanatorium in the five years before death. In 1938 only 10 out of 119 dying of tuberculosis, or 8.4 per cent. had had the benefit of such care. Even in pulmonary cases only 8 out of 101 had a history of sanatorium care.

In Tables XVII, XVIII and XIX are presented details of the survey results for each county, district and municipality. For non-urban parts of the districts and for counties, figures are given separately for Indians and the white population for pulmonary cases only. The data on municipalities show the findings for all cases and for pulmonary cases alone. A review of these data serves to emphasize the variations from county to county, district to district, and municipality to municipality in the proportion of residents dying of tuberculosis who had received sanatorium care within five years of death. The infrequency of a history of sanatorium care among the Indian group is again striking.

It must be stressed that these data refer in part to a period *before* the revision of *The Sanatoria for Consumptives Act* and before the new arrangement for payment of patients maintenance came into effect (July 1st, 1938). Some considerable improvement is to be expected in future, but such improvement will be reflected in the experience of the white population only and *not* necessarily among the Indians.

TABLE XVII

HISTORY OF SANATORIUM TREATMENT WITHIN FIVE YEARS OF DEATH
In Persons Dying of Tuberculosis (Pulmonary Only) Ontario, 1938.

Counties Exclusive of Cities and Towns of 5,000 and Over.

COUNTY	Pulmonary Tuber- culosis Deaths			Sanatorium Treatment*			Per Cent. Treated in Sanatorium		
	Whites	Indians	Total	Whites	Indians	Total	Whites	Indians	Total
Brant.....	6	6	12	4	0	4	67	0	33
Bruce.....	5	7	12	4	0	4	80	0	33
Carleton.....	7	0	7	3	0	3	43	0	43
Dufferin.....	1	0	1	1	0	1	100	0	100
Dundas.....	1	0	1	0	0	0	0	0	0
Durham and N'thland.....	14	0	14	6	0	6	43	0	43
Elgin.....	7	0	7	3	0	3	43	0	43
Essex.....	5	0	5	5	0	5	100	0	100
Frontenac.....	3	0	3	2	0	2	67	0	67
Glengarry.....	16	0	16	12	0	12	75	0	75
Grenville.....	6	1	7	2	0	2	33	0	29
Grey.....	7	0	7	3	0	3	43	0	43
Haldimand.....	5	2	7	4	0	4	80	0	57
Halton.....	11	0	11	7	0	7	64	0	64
Hastings.....	7	0	7	5	0	5	71	0	71
Huron.....	8	0	8	2	0	2	25	0	25
Kent.....	7	0	7	5	0	5	71	0	71
Lambton.....	6	2	8	4	1	5	67	50	63
Lanark.....	8	0	8	1	0	1	13	0	13
Leeds.....	3	0	3	2	0	2	67	0	67
Lennox and Addington.....	7	0	7	3	0	3	43	0	43
Lincoln.....	4	0	4	2	0	2	50	0	50
Middlesex.....	5	3	8	3	1	4	60	33	50
Norfolk.....	5	0	5	3	0	3	60	0	60
Ontario.....	9	1	10	5	1	6	56	100	60
Oxford.....	3	0	3	3	0	3	100	0	100
Peel.....	7	0	7	5	0	5	71	0	71
Perth.....	5	0	5	3	0	3	60	0	60
Peterborough.....	5	0	5	4	0	4	80	0	80
Prince Edward.....	2	0	2	0	0	0	0	0	0
Prescott.....	10	0	10	4	0	4	40	0	40
Renfrew.....	17	1	18	7	0	7	41	0	39
Russell.....	8	0	8	2	0	2	25	0	25
Simcoe.....	10	1	11	8	1	9	80	100	82
Stormont.....	7	0	7	5	0	5	71	0	71
Victoria.....	4	0	4	2	0	2	50	0	50
Waterloo.....	4	0	4	4	0	4	100	0	100
Welland.....	8	0	8	6	0	6	75	0	75
Wellington.....	7	0	7	3	0	3	43	0	43
Wentworth.....	8	0	8	6	0	6	75	0	75
York.....	52	0	52	32	0	32	62	0	62
Total.....	320	24	344	186	4	190	58.0	16.7	55.2

*Within five years of death.

TABLE XVIII

HISTORY OF SANATORIUM TREATMENT WITHIN FIVE YEARS OF DEATH
In Persons Dying of Tuberculosis (Pulmonary only) Ontario, 1938

Districts Exclusive of Cities and Towns of 5,000 and over.

DISTRICT	Pulmonary Tuber- losis Deaths			Sanatorium Treatment*			Per Cent. Treated in Sanatorium		
	Whites	Indians	Total	Whites	Indians	Total	Whites	Indians	Total
Algoma.....	4	10	14	1	0	1	25	0	7
Cochrane.....	17	10	27	10	0	10	59	0	37
Haliburton.....	1	0	1	1	....	1	100	....	100
Kenora.....	5	20	25	5	0	5	100	0	20
Manitoulin.....	2	11	13	1	0	1	50	0	8
Muskoka.....	4	0	4	4	....	4	100	....	100
Nipissing.....	11	2	13	10	0	10	91	0	83
Parry Sound.....	1	3	4	1	0	1	100	0	25
Rainy River.....	5	4	9	4	1	5	80	25	56
Sudbury.....	17	5	22	9	0	9	53	0	41
Temiskaming.....	8	0	8	8	....	8	100	....	100
Thunder Bay.....	5	12	17	5	3	8	100	25	47
Total.....	80	77	157	59	4	63	73.7	5.2	40.1

*Within five years of death.

TABLE XIX

HISTORY OF SANATORIUM TREATMENT WITHIN FIVE YEARS OF DEATH
In Persons Dying of Tuberculosis, Ontario, 1938
Cities and Towns, 5,000 Population and Over

CITIES AND TOWNS	Tuberculosis Deaths		Sanatorium Treatment*		Per cent. Treated in Sanatorium	
	All Forms	Pulmonary	All Forms	Pulmonary	All Forms	Pulmonary
Barrie.....	2	2	1	1	50	50
Belleville.....	5	4	2	2	40	50
Brampton.....	0	0	....	....	....	....
Brantford.....	10	9	8	8	80	89
Brockville.....	2	2	1	1	50	50
Chatham.....	5	5	3	3	60	60
Cobourg.....	1	1	1	1	100	100
Collingwood.....	2	2	2	2	100	100
Cornwall.....	16	13	6	6	38	46
Eastview.....	3	2	1	1	33	50
Forest Hill.....	0	0	....	....	....	....
Fort Erie.....	1	0	....	....	....	....
Fort Frances.....	2	2	0	0	....	....
Fort William.....	10	8	8	8	80	100
Galt.....	5	5	5	5	100	100
Guelph.....	4	4	2	2	50	50
Hamilton.....	56	56	47	47	84	84
Hawkesbury.....	10	7	1	1	10	14
Ingersoll.....	2	2	2	2	100	100
Kenora.....	4	3	3	3	75	100
Kingston.....	11	7	4	4	36	57
Kirkland Lake.....	6	6	4	4	67	67
Kitchener.....	8	7	4	4	50	57
Leamington.....	2	2	1	1	50	50
Lindsay.....	7	6	3	2	43	33
London.....	24	20	17	16	71	80
Midland.....	1	1	1	1	100	100
Mimico.....	1	1	1	1	100	100
New Toronto.....	1	1	1	1	100	100
Niagara Falls.....	4	3	3	3	75	100
North Bay.....	3	1	2	1	67	100
Orillia.....	1	1	1	1	100	100
Oshawa.....	6	4	4	4	67	100
Ottawa.....	73	66	45	44	62	67
Owen Sound.....	6	6	5	5	83	83
Pembroke.....	8	7	6	6	75	86
Peterborough.....	3	3	3	3	100	100
Port Arthur.....	5	4	2	2	40	50
Port Colborne.....	3	2	2	2	67	100
Preston.....	3	2	2	2	67	100
Renfrew.....	2	1	2	1	100	100
St. Catharines.....	4	3	3	3	75	100
St. Thomas.....	4	3	2	2	50	67
Sarnia.....	9	8	5	4	56	50
Sault Ste. Marie.....	13	11	6	6	46	55
Simcoe.....	2	1	1	1	50	100
Smith's Falls.....	6	6	2	2	33	33
Stratford.....	4	3	4	3	100	100
Sudbury.....	12	12	10	10	83	83
Swansea.....	0	0	....	....	....	....
Timmins.....	14	11	10	9	71	82
Toronto.....	234	212	155	151	66	70
Trenton.....	1	0	0	....	0	....
Waterloo.....	1	1	0	0	0	0
Welland.....	3	2	2	1	67	50
Weston.....	0	0	....	....	....	....
Whitby.....	2	2	2	2	100	100
Windsor.....	26	24	19	18	73	75
Woodstock.....	2	2	1	1	50	50
Total.....	655	579	428	414	65.3	71.1

*Within five years of death.

TABLE XX

DEATH RATE PER 100,000 POPULATION FROM ALL TYPES OF TUBERCULOSIS
AND SANATORIUM BEDS PER DEATH IN THE
PROVINCE OF ONTARIO

YEAR	Death Rate per 100,000	Total Number of Deaths	Number of Sanatorium Beds	Number of Beds per Death
1935	36.2	1,303	3,040	2.33
1936	35.9	1,327	3,122	2.35
1937	35.4	1,315	3,145	2.39
1938	33.1	1,237	3,367	2.72
1939	(not available)	(not available)	3,595	(not available)

TABLE XXI

* BED COMPLEMENT

(Adults and Children)

At September 30th

LOCATION OF SANATORIA	1935	1936	1937	1938	*1939
Brantford.....	100	102	110	102	102
Cornwall.....	.....	.....	.....	108	112
Fort William.....	101	101	104	101	187
Gravenhurst.....	440	440	440	435	440
Haileybury.....	115	115	115	115	106
Hamilton.....	600	600	600	600	702
Kingston.....	.....	35	35	46	47
Kitchener.....	125	125	140	148	148
London.....	562	600	604	604	611
Ottawa.....	210	210	210	210	210
St. Catharines.....	84	84	85	85	86
Weston.....	561	568	572	683	676
Windsor.....	142	142	130	130	168
Total.....	3,040	3,122	3,145	3,367	3,595

*Bed complement represents permanent units of bed-service provided for in-patients. In 1939 there were also 80 "contingency" beds pressed into service when needed, which are not included above.

TABLE XXII
AVERAGE DAILY NUMBER OF PATIENTS
(Adults, Children and Newborn)

IN RESIDENCE DURING THE YEARS ENDING SEPTEMBER 30th

LOCATION OF SANATORIA	1935	1936	1937	1938	1939
Brantford.....	87	72	74	85	79
Cornwall.....	.....	.....	.....	79	110
Fort William.....	27	96	101	107	146
Gravenhurst.....	433	428	428	424	425
Haileybury.....	103	102	95	103	99
Hamilton.....	608	590	594	608	679
Kingston.....	.....	8	34	40	46
Kitchener.....	123	118	133	133	145
London.....	495	516	497	518	538
Ottawa.....	192	194	193	191	195
St. Catharines.....	81	80	79	81	83
Weston.....	532	529	504	541	626
Windsor.....	137	126	120	124	144
Total.....	2,818	2,859	2,852	3,034	3,315

TABLE XXIII
NUMBER OF PATIENTS TREATED
(Adults, Children and Newborn)

DURING THE HOSPITAL YEARS ENDING SEPTEMBER 30th

LOCATION OF SANATORIA	1935	1936	1937	1938	1939
Brantford.....	160	162	139	177	183
Cornwall.....	.....	.....	.....	173	188
Fort William.....	120	209	232	233	291
Gravenhurst.....	839	800	804	819	833
Haileybury.....	210	197	215	217	220
Hamilton.....	1,013	1,040	1,090	1,200	1,199
Kingston.....	.....	45	96	90	88
Kitchener.....	220	230	253	259	282
London.....	1,129	1,159	1,193	1,061	1,117
Ottawa.....	406	364	353	343	363
St. Catharines.....	179	187	175	173	178
Weston.....	922	906	884	995	1,059
Windsor.....	234	254	225	232	272
Total.....	5,432	5,553	5,659	5,972	6,273

TABLE XXIV
COLLECTIVE DAYS' STAY OF ALL PATIENTS
DURING THE YEARS ENDING SEPTEMBER 30th

LOCATION OF SANATORIA	1935	1936	1937	1938	1939
Brantford.....	31,804	26,510	26,937	31,026	28,791
Cornwall.....	.....	.....	.....	28,735	40,056
Fort William.....	9,867	35,152	37,007	39,026	53,397
Gravenhurst.....	158,083	156,568	156,092	154,786	155,208
Haileybury.....	37,660	37,498	34,542	37,429	36,228
Hamilton.....	221,780	215,863	216,903	221,804	247,925
Kingston.....	.....	2,818	12,486	14,422	16,924
Kitchener.....	44,986	43,354	48,636	48,477	52,868
London.....	180,799	188,731	181,556	188,914	196,394
Ottawa.....	70,063	70,938	70,340	69,630	71,044
St. Catharines.....	29,534	29,225	28,853	29,698	30,402
Weston.....	194,135	193,707	183,846	197,993	228,299
Windsor.....	49,874	46,111	43,880	45,352	52,724
Total.....	1,028,585	1,046,475	1,041,078	1,107,292	1,210,260

REPORT OF MEDICAL INSPECTION OF SANATORIA

As explained in the last Annual Report, commencing in July, 1938, a system of regular visits to each sanatorium by a physician from the Division of Tuberculosis Prevention was placed in operation. Early in the Spring of 1939, a complete survey had been made of all sanatoria, resulting in the collection of considerable data regarding the operation of services within the various sanatoria as well as concerning the individual patients under treatment at the time of the visits.

The following tables show certain information which was compiled from the cards prepared for each patient:

	Male	Female	Total	% of Number Reviewed for Each Sub-Group
1. Total No. of patients reviewed.....	1752	1477	3229	100%
2. Age Groups:				
0- 9 years.....	67	59	126	3.9%
10-19 years.....	117	232	349	10.8%
20-29 years.....	468	627	1095	33.9%
30-39 years.....	438	342	780	24.2%
40-49 years.....	328	113	441	13.7%
50 years and over.....	334	104	438	13.6%
3. Marital Status:				
Single.....	902	861	1763	54.6%
Married.....	742	537	1279	39.6%
Widowed.....	74	49	123	3.8%
Separated.....	34	30	64	2.0%
4. Admissions to the Sanatorium Visited:				
1st Admission.....	1280	1088	2368	84.5%
2nd Admission.....	188	148	336	12.0%
3rd or more Admissions.....	70	30	100	3.6%
5. Duration of Residence in Sanatorium Since Last Admission:				
Less than 1 year.....	960	814	1774	54.9%
1 to 2 years.....	375	341	716	22.2%
2 to 3 years.....	180	141	321	9.9%
3 years or more.....	237	181	418	12.9%

	Male	Female	Total	% of Number Reviewed for Each Sub-Group
6. Occupations:				
Labourers.....	690	3	693	24.7%
Artisans, Factory, Tradesmen, etc.....	358	106	464	16.5%
Domestics, Waiters, Food Handlers.....	35	147	182	6.5%
Clerical, Office, Store, etc.....	204	130	334	11.9%
Students, Public, High, College, etc.....	115	170	285	10.2%
Pre-School Children.....	50	36	86	3.1%
Nurses, Orderlies, Hospital Employees..	25	84	109	3.9%
Housewives.....	0	488	488	17.4%
Others or none given.....	73	100	173	6.2%
7. Diagnoses Causing Admission:				
“Presumptive evidence” or “Observa- tion”.....	23	14	37	0.8%
Childhood Tuberculosis (all types).....	50	43	93	2.9%
Tuberculous Pleurisy with Effusion.....	31	27	58	1.8%
Minimal Pulmonary Tuberculosis.....	109	174	283	8.8%
Moderately Adv. Pulmonary Tubercu- losis.....	395	456	851	26.4%
Advanced Pulmonary Tuberculosis.....	1052	703	1755	54.4%
Non-Pulmonary Tuberculosis.....	90	62	152	4.7%
8. Non-Tuberculous Associated Conditions:				
Non-Tuberculous Pulmonary Disease...	56	9	65	2.0%
Diabetes.....	25	11	36	1.1%
Syphilis.....	34	24	58	1.8%
Silicosis.....	48	0	48	1.5%
Others.....	158	122	280	8.7%
9. Condition at time of Visit:				
Tuberculosis, Unstable.....	1419	1241	2660	82.4%
Tuberculosis, quiescent.....	235	199	434	13.4%
Tuberculosis, apparently arrested.....	5	9	14	0.4%
Sputum Positive for Tuberculous Bacilli.....	852	529	1381	42.8%
No. of Tuberculous Complications.....	278	221	499	.....
10. Treatments Applied (some patients have had more than one):				
Pneumothorax attempted unsuccessfully	245	218	463	14.3%
Pneumothorax abandoned or discon- tinued.....	225	156	381	11.8%
Pneumothorax (unilateral).....	415	490	905	28.0%
Pneumothorax (bilateral).....	60	73	133	4.1%
Intrapleural Pneumolysis.....	92	117	209	6.4%
Phrenic nerve crushing.....	235	219	454	14.1%
Phrenic nerve evulsion.....	32	38	70	2.2%
Pneumoperitoneum.....	22	20	42	1.3%
Extrapleural pneumo-(lysis and thorax)	28	29	57	1.8%
Thoracoplasty.....	102	83	185	5.7%
Chest Surgical Index.....	0.92	1.1	0.98	.....
(Number of Chest Surgical Proce- dures divided by number of Tubercu- lous patients minus those with Child- hood type or Non-Pulmonary type).				
Immobilization of Joints.....	.....	.....	145	4.5%
Operative fixation.....	.....	.....	56	1.7%
11. “Maximum Benefit, Positive Sputum”.....	60	11	71	2.2%
12. Ratio of Staff to Patients:				
No. of Patients to 1 Physician (including medical Superin- tendent).....			55	.....
No. of Patients to 1 Graduate Nurse.....			8.5	
No. of Patients to 1 Nurse other than graduate.....			28	
No. of Patients to 1 Nurse (graduate or otherwise).....			6.5	.....
No. of Patients to 1 Ward Helper (female).....			31	.....
No. of Patients to 1 Ward Helper (male).....			18	.....
No. of Patients to 1 Ward Helper (both sexes).....			12	.....
No. of Patients to 1 Clerical employee (stenographers, clerks)			50	.....
No. of Patients to 1 All-other staff (maintenance, farm help)..			4.0	.....
No. of Patients to 1 Total Staff (all employees).....			1.9	.....

From these tables we can make the following observations:

- (a) Approximately 58% of the patients in sanatoria during the survey were between the ages of 20 and 40 years.
- (b) Approximately 15% of the patients in sanatoria during this survey had been admitted to that sanatorium on at least one previous occasion.
- (c) Approximately 13% of the patients in sanatoria during this survey had already been in sanatorium for three or more years.
- (d) At least 80% of the patients considered were admitted to sanatorium with moderately or far advanced pulmonary tuberculosis. Non-pulmonary tuberculosis only, accounted for 4.7%.
- (e) Artificial pneumothorax treatments had been or were being applied successfully or unsuccessfully upon approximately 58% of the patients who were in sanatoria at the time of this survey.

The above tables represent only a portion of the total information collected, and the data is available as it pertains to each of the thirteen separate sanatoria.

A comparison of certain features among the various sanatoria showed marked and significant variations. The following remarks will give some indication of this variation.

- (a) At two sanatoria approximately 15% of the patients in residence were under 10 years of age whereas the next highest incidence of that age group was 6% at one sanatorium and the average for all sanatoria was approximately 4%.
- (b) At 3 sanatoria there were 6%, 8% and 10% respectively of the patients in residence with a diagnosis of "childhood tuberculosis" whereas the average for all sanatoria was only 3%.
- (c) At two sanatoria the "Chest Surgical Index" was .29 and .32 respectively whereas the average for all sanatoria was .98.
- (d) At four sanatoria only approximately 22% of the patients in residence were receiving artificial pneumothorax treatments at the time of the visit whereas in the remaining nine sanatoria 36% of the patients were receiving such treatments.
- (e) The average number of patients to one physician was 55, but at four sanatoria there were more than 70 patients to each physician. The average number of patients to each nurse (graduate and non-graduate) was 6.5, but at two sanatoria, there were more than ten patients to each nurse.
- (f) Although the medical records at the majority of the sanatoria were neat, orderly and sufficiently comprehensive, such records at several sanatoria were either poorly written in long hand or lacked many essential features.

Regular visits to each of the sanatoria are being continued by a clinician from this Division. At each visit, a review is made of the records and a card completed for each patient in residence at the time of the visit and also for those patients admitted and discharged in the interval between the visits. In this manner, a representative from this Division reviews the records (X-ray films, other findings, treatments given, etc.) of every patient who enters any Ontario sanatorium.

In certain cases, this Division is causing Provincial Aid to be deducted where the inspector finds that a patient remained in sanatorium too long. Such cases have almost entirely been examples of non-tuberculous disease where in the opinion of this Division more prompt investigation and earlier discharge should have been effected.

REPORT UPON AFTER-CARE OF PATIENTS DISCHARGED FROM SANATORIA

This Division is responsible to arrange for, provide, and directly supervise the after-care of those patients who were admitted to sanatoria without municipal residence or from Unorganized Territory. The following table shows the number of ex-patients of sanatoria in the above categories for whom the Division was supplying after-care throughout the past year.

Ex-Patients of Sanatoria without Municipal Residence or from Unorganized Territory	Receiving Board and Lodging	Receiving Assistance at Home of Relative	Receiving Pneumothorax Refill Treatments
1. No. on after-care as of Dec. 31, '38.....	10	3	26
2. No. placed on after-care from Jan. 1, '39 to Dec. 31, '39.....	30	32	14
3. Total number receiving after-care during the year.....	40	35	40
4. No. discontinuing after-care measures from Jan. 1, '39, to Dec. 31, '39:			
Returned to Sanatorium for treat- ment.....	4	2	7
Measures no longer required.....	8	8	3
Obliterative pleuritis.....	.....	.....	1
Against Medical Advice.....	.....	.....	3
5. No. on after-care as of Dec. 31, '39.....	28	25	26

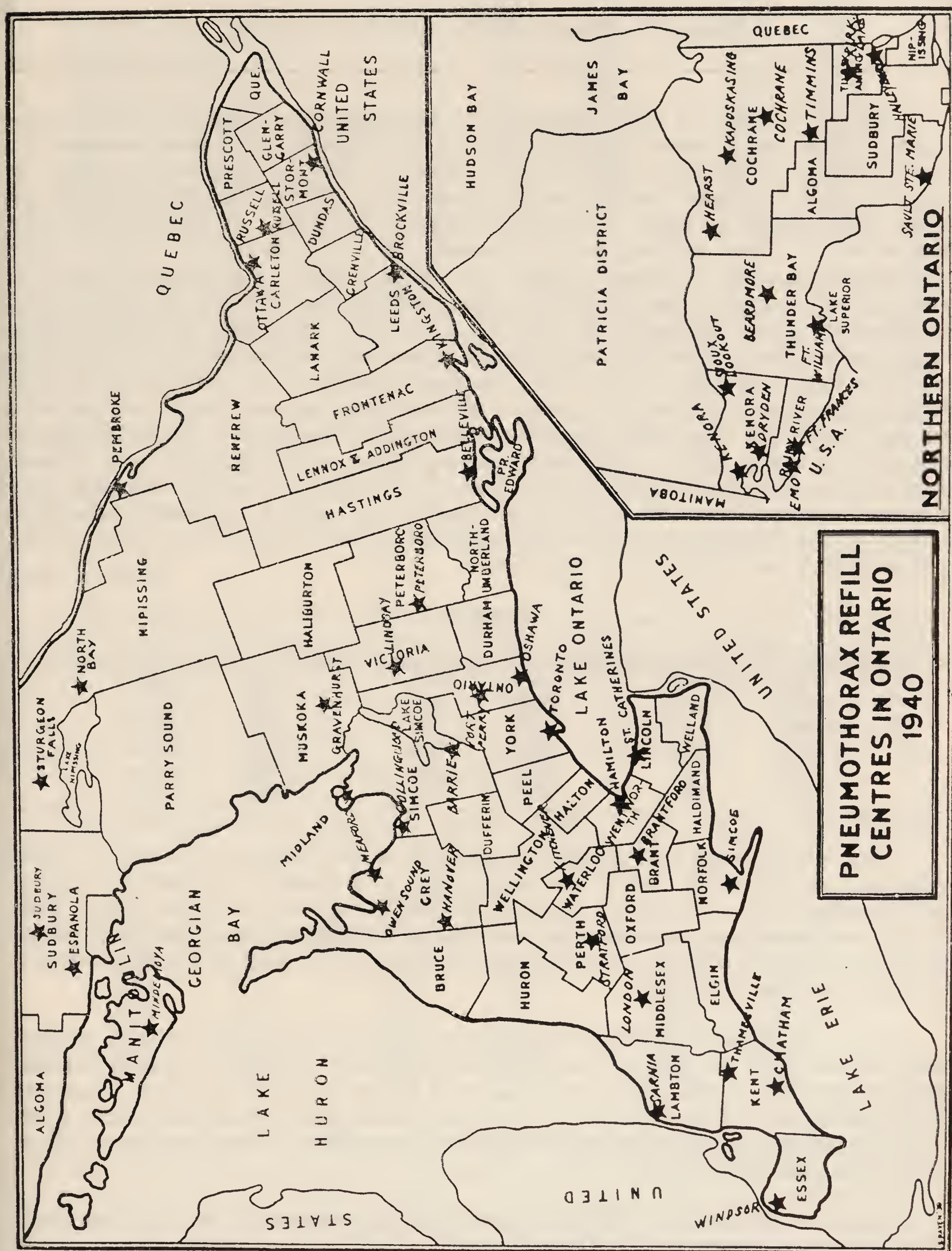
A problem has arisen with regard to those ex-patients of sanatoria who are found by re-examination to require no further after-care (i.e., they could undertake work not unduly strenuous) but for whom no such work can be obtained. Obviously such persons should be eligible for the ordinary welfare assistance. However, the establishment of responsibility for such "relief" is based upon residence differing entirely from the definition of residence under the *Sanatoria for Consumptives Act*. Many of our ex-patients of sanatoria who had established no municipal residence under the *Sanatoria for Consumptives Act* at the time of admission to sanatoria have been transients for many years. This fact renders the fixing of responsibility for relief a difficult if not impossible task. The Department of Welfare is co-operating in every way to assist this Division in this problem.

This Division is also responsible to administer the *Sanatoria for Consumptives Act* in which the responsibility for after-care is placed upon the municipalities where the patient had established residence in an organized municipality at the time of admission. During the past year, a relatively small but definite number of cases have required investigation to determine the adequacy of the after-care being supplied to those ex-patients by the municipalities concerned. The advisability and necessity for adequate after-care was pointed out to these municipalities and in practically all cases a satisfactory adjustment was made. This work by the central office entails a very considerable amount of time-consuming investigation and correspondence.

Although each municipality is required to pay the approved physician, clinic, or hospital, for pneumothorax treatments upon their indigent patients requiring treatments following discharge, the Provincial Department of Health, through this Division, reimburses the municipalities for whatever amounts they pay for the pneumothorax refills up to \$3.00 per refill.

The following figures will give some indication of the extent to which use is made of pneumothorax treatments upon ex-sanatorium patients at the various treatment centres. The existence of such treatment centres and the provision for these treatments throughout the Province makes possible the discharge of many patients who would otherwise remain in sanatorium.

Period	No. of Individuals Receiving Refills	No. of refill Treatments Given	Payment made for these Treatments
Jan. 1, '39-Dec. 31, '39.	735	11,080	\$31,556.15



DIVISION OF MATERNAL AND CHILD HYGIENE AND
PUBLIC HEALTH NURSING

JOHN T. PHAIR, M.B., D.P.H., Director

Official concern in what appeared to be unnecessary deaths among pregnant women began some twenty years ago in Ontario, with the formation of the Division of Maternal and Child Hygiene. This concern was justified by the fact that for years Ontario had a maternal death rate substantially greater than that existing in most of the less favoured countries. It was undoubtedly presumed by those making the comparisons so unfavourable to Canada that the standards used in compiling such data were uniform. Inferences based on the limited amount of factual information available and the lack of opportunity for research were, as might be expected in the light of present day knowledge, only true in part. Much of the effort of those responsible for the introduction of corrective measures was directed at public education, in order to correct the fixed conception that pregnancy was a physiological process and as such should be medically and surgically ignored until disaster presented. That failure on the part of the public to appreciate the significance of pregnancy and labour was not the only major contribution to the high mortality rate among pregnant women, is best illustrated by the figures given in Table I, for despite the best efforts of the Department and other agencies, there is little in the way of improvement from 1924 to 1937 inclusive.

TABLE I

Year	Rate	Year	Rate	Year	Rate
1924	5.8	1929	5.4	1934	5.6
1925	5.5	1930	6.2	1935	5.0
1926	5.6	1931	5.4	1936	5.7
1927	6.0	1932	5.1	1937	5.2
1928	5.8	1933	5.4	1938	3.8

The presentation and general acceptance of the Report of the New York Academy of Medicine had a heartening effect on those who were convinced of the significance of factors other than public apathy or ignorance. This report, supported as it has been by other comparable studies, has already done much to re-direct official and professional effort in the task of death reduction among expectant mothers.

It is now generally accepted that there are two major factors in a favourable outcome for pregnancy, namely, the physical condition of the individual patient from conception to the conclusion of labour, and the skill and judgment of the physician. The satisfactory control of these alone can permanently iron-out the statistical fluctuations of maternal mortality curves and bring them to a more desirable level.

The low figure for 1938 is extraordinarily gratifying to all concerned. It is, however, as yet not wholly explained and while most encouraging, cannot be considered as evidence of our satisfactory solution of this problem.

The distribution of the deaths by cause is listed below as well as a comparison of the year 1938 with the previous five years.

TABLE II

CAUSE OF DEATH	1933 to 1937		1938	
	%	Rate	%	Rate
Abortion with sepsis.	11.8	0.64	10.4	0.40
Abortion without sepsis.	3.5	0.19	3.6	0.14
Ectopic gestation.	3.7	0.20	4.4	0.17
Puerperal haemorrhage.	11.4	0.61	8.8	0.34
Puerperal septiciemia.	20.7	1.10	19.9	0.76
Puerperal albuminuria and eclampsia.	18.9	1.01	17.9	0.69
Other toxaemias of pregnancy.	5.3	0.28	3.6	0.14
Puerperal embolism, sudden death.	10.7	0.57	16.3	0.63
Other accidents of childbirth.	11.6	0.62	13.9	0.53
Other conditions.	2.5	0.13	1.2	0.05

A study of the above Table shows an improvement over almost the entire list of causes of death. Analyses of these data show a reduction in all causes except embolism; abortions were decreased by 35%, haemorrhage by 44%, sepsis (excluding abortion) by 31% and toxaemia by 36%. These facts suggest that there is a more conscientious appreciation on the part of the patient herself as well as those attending her, of the importance of early and constant supervision during the period of pregnancy. Furthermore, the decline in those deaths attributed to septiciemia has undoubtedly been influenced by the newer chemo-therapy and in this group there is every reason to expect a further decline with the more general use of these preparations.

Infant Hygiene.

Again applying the only available index of progression, namely the death rate, per 1000 living births, it would appear that the consistent downward trend in deaths among infants which has been maintained in Ontario during the last ten years is to continue. The figure of 50 per 1000 living births, which a generation ago was considered as an approach to the irreducible minimum has been passed and a new objective must be set. (The rate for 1938 is estimated at 49.6 per 1000 living births).

The following Table shows the Infant Death rates for the last fifteen years.

TABLE III

Year	Rate	Year	Rate	Year	Rate
1924	75.8	1929	76.0	1934	56.6
1925	78.9	1930	73.7	1935	55.7
1926	78.4	1931	71.0	1936	54.4
1927	71.1	1932	61.0	1937	54.8
1928	71.2	1933	59.6	1938	49.6

Pneumonia, diarrhoea and enteritis rank third and fourth respectively as causes and these two groups of preventable causes made up 20% of the total deaths under one year of age for 1938. The leading causes of death take on new significance as the emphasis shifts from infection, diarrhoea and enteritis and respiratory diseases to prematurity and birth injury, et cetera. The problem of conserving infant lives has now become a problem of ensuring the delivery of a healthy, full-time foetus. The hazards of the post-natal period are now less than those associated with intra-uterine stay and the dangers of delivery.

The following Table shows the chief causes of infant deaths in five year periods since 1920. This is given in terms of percentages of the total deaths in that age group.

TABLE IV

CAUSE	1920	1925	1930	1935	1938
Contagion.....	10.0	8.9	7.0	8.3	5.6
Respiratory diseases.....	12.4	11.6	11.3	11.6	11.4
Diarrhoea and enteritis.....	18.0	13.9	16.3	7.9	9.7
Malformations.....	6.6	10.2	8.6	11.8	13.8
Prematurity.....		26.4	27.7	31.0	33.0
Birth injury.....		4.9	5.6	8.4	8.8
Congenital debility and other diseases peculiar to infancy.....	43.9	12.7	12.2	11.7	10.0

Preschool and School Hygiene.

Apparently the realization that a constructive health programme should include the care of the preschool child is gaining ground as more municipalities with organized health services are making provision for service directly designed to meet health needs of this age group. The Division gave assistance in this particular phase of the local programmes in five municipalities last year.

For the fifth year the Division assumed on behalf of the Department of Education the direction of the medical examination of applicants to the various teacher-training schools of the Province. The physicians' findings in these examinations would indicate that this service is justified, not only in the interest of the Department but to the students themselves, in that it discovers both major and minor defects and disabilities, many of which are readily corrected by appropriate treatment. It also favourably influences these potential teachers in their reaction to the health of the children with whom they will ultimately come in contact.

The Summer Course in Health Education for teachers was again carried on with the Director of the Division acting as Principal. This co-operative effort, which for seven years has been sponsored jointly by the Departments of Health and Education has been viewed with sufficient favour to justify the Metropolitan Life Insurance Company issuing a booklet outlining the purpose and content of the course. This booklet has already been distributed to all organizations interested in any phase of teacher-training in Canada and the United States and there are already signs of comparable courses being established in other provinces and states.

PUBLIC HEALTH NURSING

EDNA L. MOORE, Reg. N., Chief Public Health Nurse.

May first with the return of Miss B. E. Johnson to duty the Public Health nursing personnel of the Department numbered sixteen. Working from Head Office were a Chief Public Health Nurse and four supervisors. In the Eastern Ontario Health Unit one supervisor and eight staff nurses carried on the Public Health Nursing programme. In the District of Temiskaming, one Public Health nurse served an extensive area, which includes considerable unorganized territory. Protection of child life and health through immunization, the control of communicable diseases and health education is the major phase of the work. Miss Laura Vrooman continued her association with the Department programme of School Health Education.

The supervisors, through the fine relationships that they have developed with the nurses and health officials and because of the rich experience they bring to their work, have made a notable contribution to the improved quality of the Public Health nursing services in the province.

The supervisory staff made visits to ninety-three centres where Public Health nursing service is carried on. In eleven communities where changes in personnel occurred visits of varying length were made as soon as possible. It would be difficult to overemphasize this phase of the supervisory programme. Its purpose is to maintain continuity of service to the community by assisting the nurse in adjusting to the new situation and, through the study of community health needs, to help the local authorities in the development of a suitable programme.

In addition to their supervisory duties, these staff members have given the following special services during the year: demonstrations of procedures in school nursing to students at the Public Health Institute, University of Western Ontario and the School of Nursing, Toronto University; assistance with an epidemiological survey of Poliomyelitis in Windsor; preparation of records for tuberculosis nursing work in Cornwall; participation in conferences and presentation of papers at Refresher Courses; assistance at the Health Education course during the Summer School session.

All members of the central office nursing staff as well as the supervisor and a staff nurse of the Eastern Ontario Health Unit and the nurse in Temiskaming District took part in the programme for the examination of students seeking admission to the Normal Schools of the province, the College of Education, Toronto, and the Teacher Training College, Hamilton.

Field observation with limited experience for a period of one month was arranged for twenty graduate and two under-graduate students of the School of Nursing, University of Toronto. The co-operation of local Health and School Boards, Medical Officers of Health and Public Health Nurses makes possible this valuable contribution to nursing education.

During 1939 in Kingston, Sudbury and Owen Sound, the Public Health nursing services have been extended to include tuberculosis control and prevention. In the Town of Dundas the Board of Health enlarged the former school nursing service to include all phases of Public Health nursing with the co-operation of the local Branch of the Victorian Order in prenatal supervision.

The generalized nursing service was re-established in Bowmanville, while in Teck Township (Kirkland Lake) a Supervisor of Nursing has been appointed and the staff increased to four nurses. In Cornwall the Board of Health appointed a second nurse for school health service on a ten-month year basis. Both of the nurses were further engaged for two weeks during August to make a beginning on the tuberculosis follow-up work.

In Norfolk County the Christmas Seal Sale Committee engaged a public health nurse for three weeks to visit, in their homes, tuberculous patients and contacts and to study and report upon conditions with respect to the needs of the county. The County Medical Society co-operated with the committee and with the clinic physicians gave direction to the work.

The Board of Directors of Freeport Sanatorium appointed a public health nurse to develop a programme of tuberculosis nursing supervision in Waterloo County.

Record Forms for tuberculosis nursing supervision have been prepared and added to the approved list.

Numerous inquiries have come to the Division regarding the development of local health services. In each case the situation was studied and suggestions offered.

Requests for qualified personnel to relieve sick members of staff were met in several instances while assistance was given in fifteen of the eighteen appointments made throughout the province during the year.

A travel grant from the International Health Division, Rockefeller Foundation, enabled the Chief Public Health Nurse to spend April 19 to May 4 observing health work in various well-chosen centres in the United States. Such an opportunity is stimulating as well as instructive.

Notes on the material presented at the Refereshers Course on Child Hygiene at the School of Nursing, University of Toronto, were prepared and sent to the public health nurses of the province in March.

With the outbreak of war the probable effect upon public health nursing service was considered and a decision reached that nutrition and mental health should receive special emphasis because of their fundamental importance in the national life. In the Autumn letter of the public health nurses of the province prominence was given to these subjects.

Visitors to the Division during the year came from Sweden, Great Britain, Panama, the United States, India, New Zealand and Nova Scotia.

As in previous years the Honorary Consultant in Public Health Nursing, Miss Elizabeth L. Smellie, C.B.E., gave generously of her time in the discussion of our interests.

Close relationships have existed between our staff members and those of the Women's Institute Branch, Department of Agriculture, and the Department of Public Welfare.

Problems of importance that will receive special attention in the coming year are: methods in the development of local and district health committees and the selection, training and use of volunteer workers in the public health nursing field.

DIVISION OF SANITARY ENGINEERING

A. E. BERRY, M.A.Sc., C.E., Ph.D., Director

In the year 1939 the outbreak of war and the uncertainties which preceded it for a number of months had a disconcerting effect on sanitary works programmes. Municipalities hesitated to embark on major expenditures for water works or sewerage, although in the previous year a noticeable upward swing in this direction had begun. Much progress was made in the milk control programme for the province, and pasteurization was extended to additional areas. The weather and rainfall during the summer were not abnormal, and hence no unusual problems were created in stream control. Requests for technical assistance in the solution of sanitary problems continued as usual, these coming from Health Officers, municipal officials and citizens adversely affected by these conditions.

Water Works Programmes.

Expenditures approved during the year for water works programmes amounted to \$1,466,181.74, in comparison with a total of \$583,220.23 for the year 1938. For the second year in succession there has been an increase in approvals for water works. Had conditions been more normal an even greater advance might have been expected.

Some of the more important projects in water works during the year are of interest as an indication of the further extension of these facilities to urban centres, and likewise to show advances in methods.

The water works plant for the City of Toronto at Victoria Park has been under construction during the year and should be ready for operation at an early date.

At West Lorne a new water works system was put into service. The supply is taken from the lake about four miles distant, is filtered and chlorinated in a modern plant. It is a good example of what can be accomplished by a small municipality.

At Burlington a new intake pipe was constructed, the previous one having been broken at different times.

The City of Kingston secured an engineering report on a water filtration plant, to take water from a new location in the lake. The outbreak of war has delayed action on this.

Further progress was made in the mining areas of the northern parts of the province, including Geraldton, Larder Lake, and other areas. At McKim Township a water works distribution system was built with water being secured from the City of Sudbury.

Substantial extensions of water mains were made in a number of municipalities throughout the province.

Water Chlorination.

Water chlorination has continued to provide a necessary and effective measure for safety. Over 200 supplies are regularly treated with this chemical. In nearly all the larger plants liquid chlorine is now in use. For the smaller sup-

plies there has been an increase in recent years in the use of hypochlorite solutions, fed by specially designed equipment. Few formerly untreated waters have recently been added to this list, and new installations accordingly have been chiefly for replacements or for duplication.

Since water chlorination to be effective must be applied continuously and properly, careful supervision is necessary. Periodic inspections of these treatment plants have been continued during the year by engineers of the Division. Changing of operators, and replacement by untrained employees intensifies the problem of securing proper supervision.

Sewerage Programmes.

The extent of sewerage programmes in the province during the year can be seen by the expenditures approved by the Department. For 1939 this figure was \$1,316,381.29 as compared with a total of \$1,083,331.57 for the previous year. The year started out with a promising outlook but world affairs left an impression here as in other public enterprises. In spite of this a number of important projects were advanced; and an increase in expenditures occurred over the previous year.

Main Sewerage Projects.

Some of the more important sewerage programmes during the year have been directed towards the correction of long standing problems.

Important advances were made during the year leading to a solution of the sewage disposal situation in Toronto. On May 1st the City Council appointed an engineering Board of Review to examine and report upon the different measures advocated for the treatment of sewage for the city. This Board of five members consisted of G. H. Ferguson, Ottawa, S. A. Greeley, Chicago, C. W. Hubbell, Detroit, W. B. Redfern, Toronto, and A. E. Berry, Toronto. Two reports, one by Mr. Redfern, and one by the other four members, were submitted to Council in September. The minority report suggested sedimentation coupled with flocculation, and effluent filters, followed by chlorination. The majority report recommended activated sludge at a cost of \$9,500,000, with the plant to be located at the lake front in the Ashbridge's Bay area. After much discussion the Council agreed to submit to the electorate a proposal embodying the first stage of a complete treatment plant. This was endorsed by the voters by a large majority.

At Kingston a proposal was considered for the construction of a sewage treatment plant comprising sedimentation, and trunk sewers.

In Westminster Township a trunk sewer was started, to serve a fast growing area near the City of London. This will carry sewage to the west side plant of the city.

A number of needed extensions were made to sewerage systems in the different municipalities.

Operation of Sewage Disposal Works.

The need for intelligent operation of sewage treatment plants has been emphasized repeatedly. Low water flows combined with hot weather create difficult problems during the summer. Regular examinations have been made of these by Engineers of the Department. As the number of plants increase and operating conditions are intensified it becomes increasingly apparent that trained operators can be of great value. Facilities for acquiring this training is essential, and the energetic operator can do much to improve his knowledge.

Stream Control.

Stream control has been related to both sewage disposal and water supplies. In this field two projects of some proportions have been of interest during the year. They are the Grand River Conservation Scheme and the Old Welland Canal waste treatment proposal.

The year has witnessed the start of construction of a water conservation dam on the Grand River, the first project of this nature to be initiated in the province. Since this river carries much sewage, discharged after varying degrees of treatment, the volume of water flow is important. By the storage of excess water during the wet seasons it is hoped to avoid the very low flows of dry, hot periods, and thereby reduce the cost of sewage disposal as well as minimizing unsanitary conditions. This measure will not be available for the summer of 1940.

The Welland Canal is a different stream control problem in that artificial adjustment of the flow of water in one section of the old canal calls for reduction of water to a point where additional treatment of the sewage and industrial wastes is unavoidable. Progress has been made in bringing this matter to a solution. The municipalities of Port Dalhousie, St. Catharines, Thorold and Merritton are involved, and joint action is essential. An engineering report was released by the Dominion Department of Transport reviewing the conditions and containing recommendations for correction. Further progress on this is anticipated for the immediate future.

Milk Control

Active steps have been taken during the year in the control of public milk supplies. Extension of compulsory pasteurization to additional areas has been made as indicated by the Orders-in-Council appended hereto. These areas, together with others which will be included early in 1940 will provide pasteurization to the entire province except those centres of very small population. Approximately 92% of all milk delivered or sold for human consumption in the province will then be pasteurized.

In addition to extending the scope of this legislation close supervision has been exercised over all pasteurizing plants. Improvements to the buildings and equipment in order to comply with provincial standards have gone forward and at the end of the year the major changes in nearly all dairies had been completed. Certificates of Approval, as required under the legislation were issued to 373 pasteurizing plants. Over 1800 inspections of plants were made by the Division during the year. At the close of the year 750 pasteurizing plants were in service.

Control of the milk supply has been aided greatly by laboratory examinations. This work has now been extended to include as a routine procedure such tests as plate counts, colon counts, phosphatase and butter fat tests. These checks along with periodic examinations of the plants have done much to bring about marked improvements in the products offered for sale to the public.

No provision has been made as yet regarding standard qualification of the operators of these processing plants, although consideration has been given to what additional precautions in this respect might be applied. The operator of a pasteurizing plant is still an important link in this chain of safety and must always be such in spite of the many advances made in equipment used in the dairy.

Appended will be found the list of areas brought under compulsory pasteurization during the year.

Recreational Sanitation.

Recreational areas continue to be important sanitary problems during the summer season. As in recent years, the supervision of motor tourist camps, refreshment services and tourist lodging houses have been attended to by local Boards of Health. The more extensive lakeland areas have been covered by engineers of the Division. This work was directed chiefly to the control of public and semi-public water supplies and sewerage systems, and to the milk supplies.

The number of fresh-air camps inviting public patronage has now reached a considerable figure. These include those privately operated, those conducted by service clubs, churches, Y. M. C. A., Y. W. C. A. and other groups. No uniform standard for these now exists, and there is confusion on the part of those who may wish to send their children to them. The locations of these cannot be known to the Department without some form of registration or licensing.

Complaints.

Requests for assistance in the solution of sanitary problems continued during the year. These are received in greatest numbers during the summer. Many of these deal with the disposal of sewage and industrial wastes. Milk plants and canning factories have been major causes of complaint. Over 150 requests for assistance were received during the year in addition to routine investigations undertaken by the Division's personnel.

Attached is a list of the water works and sewerage certificates issued during the year, as well as the additional areas included for compulsory pasteurization.

CERTIFICATES ISSUED RE WATERMAIN EXTENSIONS, PURIFICATION,
ETC., FOR THE YEAR 1939

MUNICIPALITY	No. of Certificates Issued	Watermain Extensions	Supply Purification	New Systems
Aylmer.....	1	\$ 28,302 50	\$.....	\$.....
Burlington.....	2	42,000 00	41,633 00	.....
Chatham.....	2	1,380 00	.....	.....
Cornwall.....	1	13,431 00	.....	.....
Elmvale.....	1	.....	221 00	.....
Etobicoke Township.....	1	180 00	.....	.....
Fort Frances.....	1	7,900 00	.....	.....
Fort William.....	5	8,884 05	.....	.....
Geraldton.....	1	.....	.....	90,221 10
Grantham Township.....	1	1,100 00	.....	.....
Hespeler.....	1	1,551 25	.....	.....
Hamilton.....	7	38,218 00	.....	.....
Kemptville.....	1	.....	.....	71,600 00
Kingston.....	2	19,890 40	.....	457,000 00
Kitchener.....	3	7,064 00	.....	.....
Larder Lake.....	1	21,030 00	.....	.....
Leaside.....	3	32,228 00	.....	.....
London Township.....	1	1,227 72	.....	.....
McKim Township.....	1	39,040 00	.....	.....
Monaghan Township N.....	1	2,450 00	.....	.....
Nepean Township.....	1	3,750 00	.....	.....
Orillia.....	1	753 00	.....	.....
Orillia Township.....	1	4,848 41	.....	.....
Ottawa.....	3	140,466 62	.....	.....
Oxford Township East.....	1	1,425 20	.....	.....
Penetang.....	1	2,500 00	.....	.....
Perth.....	1	25,000 00	.....	.....
Plantagenet.....	1	8,217 00	.....	.....
Port Arthur.....	2	4,736 78	.....	.....
Port Credit.....	2	4,143 70	.....	.....
Port Perry.....	1	1,950 00	.....	.....
Rochester.....	1	8,764 67	.....	.....
Rockcliffe Pk.....	1	5,715 11	.....	.....
Saltfleet Township.....	1	9,870 84	.....	.....
Sarnia Township.....	1	2,905 00	.....	.....
Scarborough Township.....	2	4,855 95	.....	.....
Sudbury.....	3	61,504 08	.....	.....
Teck Township.....	7	51,678 40	2,500 00	.....
Thorold Township.....	1	1,549 06	.....	.....
Tillsonburg.....	1	5,825 50	19,398 54	.....
Timmins.....	2	62,721 40	.....	.....
Tisdale Township.....	1	8,350 06	.....	.....
Toronto.....	1	903 00	.....	.....
Waterloo.....	1	378 00	.....	.....
West Ferris Township.....	1	900 00	.....	.....
Westminster Township.....	1	2,119 00	.....	.....
Weston.....	1	23,000 00	.....	.....
Whitby.....	1	6,719 00	.....	.....
Wingham.....	1	.....	12,000 00	.....
York Township.....	3	8,041 00	.....	.....
York Township East.....	1	1,190 80	.....	.....
York Township North.....	14	40,789 60	.....	.....
Zurich.....	1	160 00	.....	.....
Total.....	99	\$ 771,608 10	\$ 75,752 54	\$ 618,821 10

CERTIFICATES ISSUED RE SEWERAGE FOR THE YEAR 1939

MUNICIPALITY	No. of Certificates	Sewer Extensions	Disposal	New
Barton Township.....	1	\$ 6,966 00	\$	\$
Belle River.....	1	2,511 28	.....	.....
Brantford.....	2	1,350 00	.....	.....
Brockville.....	4	3,799 95	.....	.....
Chatham.....	7	7,244 50	.....	.....
Cornwall Township.....	3	9,675 00	.....	.....
Etobicoke Township.....	2	37,680 00	.....	.....
Fort William.....	1	13,689 00	.....	.....
Frankford.....	1	22,711 18	.....	.....
Guelph.....	1	5,007 80	.....	.....
Hamilton.....	6	38,325 00	.....	.....
Kingston.....	4	14,942 67	.....	500,000 00
Kitchener.....	4	6,348 38	11,000 00	.....
Leaside.....	3	46,930 64	.....	.....
London.....	1	811 62	.....	.....
Malton.....	1	.....	.....	24,650 00
Monaghan Township N.....	1	3,902 81	.....	.....
Morrisburg.....	1	1,524 74	.....	.....
Ottawa.....	6	42,345 00	.....	.....
Owen Sound.....	1	3,778 50	.....	.....
Peterborough.....	2	2,089 75	.....	.....
Petrolia.....	1	2,573 00	.....	.....
Port Arthur.....	4	84,272 77	.....	.....
Port Colborne.....	1	2,281 30	.....	.....
Port Credit.....	1	13,265 00	.....	.....
Port Elgin.....	1	1,125 00	.....	.....
St. Catharines.....	3	21,814 00	.....	.....
St. Thomas.....	2	37,669 12	.....	.....
Sarnia.....	1	1,016 80	.....	.....
Scarborough Township.....	3	11,475 90	.....	.....
Simcoe.....	2	3,371 80	.....	.....
Sudbury.....	4	69,249 80	.....	.....
Swansea.....	2	13,800 00	12,800 00	.....
Teck Township.....	6	57,168 51	.....	.....
Timmins.....	3	54,039 50	.....	.....
Tisdale Township.....	1	5,496 87	.....	.....
Toronto.....	2	1,790 00	.....	.....
Waterloo.....	3	1,681 80	.....	.....
Westminster Township.....	4	73,147 00	.....	.....
Whitby.....	2	10,917 04	.....	.....
Woodstock.....	1	460 00	.....	.....
York Township.....	2	2,825 00	14,000 00	.....
York Township East.....	1	1,056 93	.....	.....
York Township North.....	5	11,701 33	.....	.....
Total.....	108	\$ 753,931 29	\$ 37,800 00	\$ 524,650 00

SUMMARY

Re WATERWORKS:	Estimated Cost
Extensions to existing systems.....	\$ 771,608 10
Purification of water supplies.....	75,752 54
New Systems.....	618,821 10
Total.....	\$1,466,181 74

Re SEWERAGE:	
Extensions to existing systems.....	\$ 753,931 29
Treatment Works.....	37,800 00
New sewerage systems.....	524,650 00
Total.....	\$1,316,381 29

The total number of applications favorably reported upon re Waterworks and Sewerage for the year was 207 and involves an estimated expenditure of.....\$2,782,563 03

Copy of an Order in Council approved by The Honourable the Lieutenant-Governor, dated the 16th day of December, A.D., 1938.

Upon the recommendation of the Honourable the Minister of Health the Committee of Council advise that section 95a of *The Public Health Act* as enacted by section 8 of *The Public Health Amendment Act, 1938*, be made applicable to the areas designated in the attached schedule.

The Committee further advise that this order shall come into force on the first of February, 1939.

Certified,

C. F. BULMER,
Clerk, Executive Council.

1. THE COUNTY OF ELGIN: Including the Townships of Aldborough, Bayham, Dorchester South, Dunwich, Malahide, Southwold and Yarmouth; and the Villages of Dutton, Port Stanley, Rodney, Springfield, Vienna and West Lorne.
2. IN THE VICINITY OF THE CITY OF GUELPH, WELLINGTON COUNTY:—That part of Guelph Township bounded on the East by the road between Lots 5 and 6; on the South by the township boundary; on the West by the western border of Concession 6; on the North by the road between Concessions 6 and 7 (known as Provincial Highway Number 7, west of the Elora road).
3. IN THE VICINITY OF THE CITY OF KITCHENER, WATERLOO COUNTY:—That part of Waterloo Township bounded on the North by the township limits; on the West by the township limits; on the South by the road running from Freeport to German Mills and directly west to the township limits; on the East by the Grand River, together with Lots 124, 71, 70 and 68, immediately east of the Grand River.
4. IN THE VICINITY OF THE CITY OF WOODSTOCK, OXFORD COUNTY:—That part of the Township of Zorra East south of the road between Lots 5 and 6; that part of Blandford Township west of the road between Lots 12 and 13; that part of the Township of Oxford East which is west of the road between Lots 12 and 13 and north of the "Old Stage Road" (between Concessions 3 and 4); that part of the Township of Oxford West which is north of the "Old Stage Road," and east of the line between Lots 3 and 4; that part of the Township of Oxford North which is east of the line between Lots 25 and 26.
5. IN THE VICINITY OF THE CITY OF SAULT STE. MARIE, DISTRICT OF ALGOMA:—The Township of Prince.
6. IN THE VICINITY OF THE TOWN OF ALMONTE, LANARK COUNTY:—That part of Ramsay Township bounded on the North by the line between Lots 24 and 25; on the West by the road between Concessions 7 and 8; on the South by the line between Lots 5 and 6; and on the East by the easterly limits of the Twelfth Concession.

7. IN THE VICINITY OF THE TOWN OF FOREST, LAMBTON COUNTY:—That part of Bosanquet Township south of the road between Lots 8 and 9, and west of the road between Concessions 11 and 12, and east of and including Concession 17; that part of Plympton Township east of the road between Lots 24 and 25 and north of the road between Concessions 12 and 13; that part of Warwick Township north of the road between Concessions 6 and 7, and west of the road between Lots 6 and 7.
8. IN THE VICINITY OF THE TOWN OF TILLSONBURG, OXFORD COUNTY:—That part of Dereham Township South of the road between Concessions 9 and 10, and east of the road between Lots 7 and 8.
9. IN THE VICINITY OF THE TOWN OF TAVISTOCK, OXFORD COUNTY:—That part of South Easthope Township in Perth County which lies south of the road between Concessions 4 and 5 and east of the line between Lots 25 and 26; that part of Zorra East Township in the County of Oxford east of the road between Concessions 11 and 12, north of the road between Lots 30 and 31, and west of the road between Concessions 14 and 15.
10. IN THE COUNTY OF ONTARIO:—That part of Rama Township bounded on the West by Orillia Township; on the North by Morrison Township; on the East by the road between Lots 5 and 6 to the north boundary of the township; on the South by the road between Lots K and L, and along the north boundary of Indian Reserve Number 32 to Lake Couchiching.
11. IN THE DISTRICT OF MUSKOKA:—That part of Morrison Township bounded on the East by the line between Lots 15 and 16; on the North by the line running between Concessions 3 and 4 to Provincial Highway Number 11, then south on Highway Number 11 to the road between Lots 7 and 8, and then westerly to the Severn River; on the West by the township boundary; on the South by the Severn River and Rama Township.
12. IN THE TOWNSHIP OF LONDON, MIDDLESEX COUNTY:—That part of London Township south of the road between Concessions 4 and 5.
13. IN THE TOWNSHIP OF McNAB, RENFREW COUNTY:—That part of McNab Township east of the line between Concessions 10 and 11.
14. THE TOWNSHIPS OF:—(a) Westminster Township, in the County of Middlesex; (b) Bucke Township in the District of Temiskaming; (c) Baldwin, Merritt and Mongowin Townships, in the District of Sudbury; (d) Gordon Township, in the District of Manitoulin; (e) Melick Township, in the District of Kenora.
15. THE VILLAGES OF:—Beaverton, Bradford, Burk's Falls, Colborne, Dundalk, Hensall, Markdale, Port McNicoll, Port Rowan, South River, Stoney Creek, Sundridge, Westport.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 30th day of May, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to Section 95a of *The Public Health Act*, the said Section 95a of *The Public Health Act* be made applicable to the municipalities and areas set forth in the memorandum hereto attached, and that this Order shall come into force on June 30th, 1939.

Certified,

C. F. BULMER,
Clerk, Executive Council.

1. THE VILLAGES OF Bloomfield, Braeside, Brussels, Port Carling, Crystal Beach, Jarvis, Newcastle, Portsmouth, Stirling, Streetsville, Thamesville, Wellington, Wheatley, Woodville.
2. That part of Mersea Township, County of Essex, lying south of the line between Concessions 6 and 7.
3. That part of Gosfield South Township in the County of Essex, lying south of the line between Concessions 3 and 4.
4. That part of Barton Township, in the County of Wentworth, included in Concession 5.
5. Those parts of the Townships of Bosanquet and Stephen, Counties of Lambton and Huron, contained in the Police Village of Grand Bend.

6. THE TOWNSHIPS OF (a) Romney, in the County of Kent; (b) Colchester South, in the County of Essex; (c) Malden, in the County of Essex; (d) Anderdon, in the County of Essex; (e) That part of the area occupied by the Police Village of Belmont in the County of Middlesex.
7. IN THE COUNTY OF HASTINGS—That part of Sidney Township west of the line between Lots 5 and 6 and south of the Canadian Pacific Railway tracks.
8. That part of the Township of Gwillimbury East, County of York, included in the Police Village of Mount Albert.
9. IN THE COUNTY OF GLENGARRY—In the Township of Kenyon, the area south of the line between Concessions 4 and 5 and east of the line between Lots 12 and 13; and in the Township of Lochiel, south of the line between Concessions 3 and 4, and west of the line between Lots 25 and 26.
10. IN THE COUNTY OF PRESCOTT—That area north of the line between Concessions 2 and 3 in the Township of Hawkesbury West.
11. IN THE TOWNSHIP OF WILLIAMSBURG COUNTY OF DUNDAS—The area bounded on the north by the line between Concessions 5 and 6, on the east by the line between Lots 22 and 24; on the south by the road between Concessions 4 and 5; and on the west by the Township boundary.
12. IN THE COUNTY OF RUSSELL—The area north of the base line in the Township of Clarence.
13. IN THE COUNTY OF DUNDAS—That portion of Winchester Township bounded on the north by the line between Concessions 7 and 8, on the east by the line between Lots 6 and 7, on the south by the line between Concessions 4 and 5, and on the west by the Township boundary.
14. IN THE COUNTY OF GRENVILLE—That portion of the Township of Edwardsburg south of the line between Concessions 2 and 3.
15. IN THE DISTRICT OF TEMISKAMING—The Townships of Teck, Lebel, Gauthier, McVittie, Hearst, McGarry and McFadden.
16. IN THE COUNTY OF WELLAND—That part of Bertie Township south of the line between Concessions 2 and 3, and west of the line between Lots 20 and 21.
17. IN THE COUNTY OF ONTARIO—That part of Pickering Township south of the line between Concessions 2 and 3; and that part of the Township of Whitby south of the line between Concessions 3 and 4.
18. IN THE COUNTY OF PRINCE EDWARD—The Township of Ameliasburg contained in Concession 1 and lying east of the line between Lots 76 and 77 and west of Lot 58.
19. The area in the Police Village of Maple in the Township of Vaughan; the area in the Police Village of St. Jacobs in the Township of Woolwich.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 30th day of May, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to Section 95a of *The Public Health Act*, the said Section 95a of *The Public Health Act* be made applicable to the municipalities and areas set forth in the memorandum hereto attached, and that this Order shall come into force and be effective from June the 30th, 1939, to October the first, 1939, inclusive, and thereafter from June the first to October the first, inclusive, each year.

Certified,

C. F. BULMER,

Clerk, Executive Council.

1. THE VILLAGES OF Erieau, Erie Beach, Sturgeon Point.
2. That part of Harwich Township, in the County of Kent, lying south of the line between Concessions 2 and 3, and south of the line between Lots 2 and 3 running from Erie Beach.
3. That part of the Township of South Walsingham, in the County of Norfolk, lying south of the line between Concessions 2 and 3.

4. That part of the Township of Charlotteville, in the County of Norfolk, lying south of the line between Concessions 1 and 2.
5. That part of Woodhouse Township, in the County of Norfolk, lying south of the line between Concessions 2 and 3.
6. IN THE DISTRICT OF MUSKOKA—The Townships of Brunel, Cardwell, Chaffey, Draper, Franklin, Freeman, McLean, Macaulay, Medora, Monck, Morrison, Muskoka, Oakley, Ridout, Ryde, Stephenson, Stisted, Watt and Wood; and the Villages of Port Sydney and Windermere.
7. IN THE TOWNSHIP OF FLOS, COUNTY OF SIMCOE—The area lying north of the road between Concessions 7 and 8, and west of the line between Lots 15 and 16.
8. IN THE TOWNSHIP OF SUNNIDALE, COUNTY OF SIMCOE—The part north of the road between Concessions 12 and 13.
9. IN THE TOWNSHIP OF NOTTAWASAGA, COUNTY OF SIMCOE—That part north of the line between Lots 30 and 31.
10. That part of Innisfil Township in the County of Simcoe, lying east of the line between Lots 20 and 21; and the area north of the road between Concessions 12 and 13 with the easterly boundary being the line between Lots 10 and 11.
11. IN THE COUNTY OF YORK—That part of the Township of North Gwillimbury west of the line between Concessions 3 and 4 and also the area north of the line between Lots 19 and 20.
That part of the Township of Georgia north of the line between Concessions 6 and 7.
12. IN THE COUNTY OF ONTARIO—That part of the Township of Brock north of the line between Concessions 13 and 14 and west of the line between Lots 6 and 7.
That part of the Township of Thorah west of the line between Lots 10 and 11.
That part of the Township of Mara west of the Canadian Pacific Railway tracks and west of the line between Lots 25 and 26.
That part of the Township of Rama west of the line between Lots 18 and 19.
13. That part of Brighton Township, County of Northumberland, lying south of the Canadian National Railway line.
14. IN VICTORIA COUNTY—The Townships of Fenelon, Verulam, Mariposa and Ops.
15. IN THE COUNTY OF ONTARIO—The Township of Scugog, and that part of the Township of Reach lying east of the line between Lots 14 and 15, and south of the line between Concessions 10 and 11.
16. IN THE COUNTY OF DURHAM—The Township of Cartwright, and that part of the Township of Manvers west of the line between Lots 10 and 11, and north of the line between Concessions 11 and 12.
17. IN THE COUNTY OF NORTHUMBERLAND—That part of the Township of Hamilton north of the line between Concessions 7 and 8.
18. All Townships in the District of Manitoulin.
19. IN TORBOLTON TOWNSHIP, COUNTY OF CARLETON—The area north of the road between Concessions 3 and 4.
20. IN THE TOWNSHIP OF FITZROY, COUNTY OF CARLETON—The area north of the line between Lots 20 and 21, east of the line between Concessions 7 and 8, and west of the line between Concessions 10 and 11.
21. IN THE DISTRICT OF PARRY SOUND—The Townships of Humphrey, Conger, Foley, Cowper, McDougall, Ferguson and Carling, and the Village of Rosseau.
22. IN THE COUNTY OF LANARK—The Townships of Burgess North, Elmsley North, Bathurst and Sherbrooke South.
IN THE COUNTY OF LEEDS—The Townships of Bastard, Elmsley South, Crosby North.
IN THE COUNTY OF FRONTENAC—The Townships of Oso and Olden.
23. IN THE COUNTY OF NORTHUMBERLAND—The Township of Seymour north of the line between Concessions 10 and 11.

DIVISION OF NURSE REGISTRATION

ALEXANDRA M. MUNN, Reg. N., Director

I have the honour to present the Report of the Division of Nurse Registration for 1939.

The Inspector of Training Schools for Nurses reports that during the past year 59 visits were paid to hospital training schools. Most visits covered from one and a half to two days, although this fall some visits have been somewhat shortened.

In June, 1939, it was the privilege of the Inspector to spend two days in Montreal. Brief visits were made to Headquarters of the Canadian Nurses' Association and to the office of the Canadian Nurse. The Registrar for the Province of Quebec arranged a visit to the Alexandra Hospital for Communicable Diseases. This was full of interest and information and gave every assurance of an excellent undergraduate course. A stimulating visit was paid also to the School of Nursing of the Montreal General Hospital.

Affiliations.

New affiliations established are as follows:

Pediatric Nursing—St. Joseph's Hospital, Peterboro,
General Hospital, Belleville,
St. Joseph's Hospital, North Bay,
(3 months—Children's Memorial Hospital, Montreal).

Hours of Duty.

A year ago a special plea was made in each hospital for better control of students' hours of duty. This plea was further strengthened by a letter from the office of the Minister of Health. It is estimated roughly that 50% of the training schools are observing the Regulation of 58 hours a week for day staff; and 20 % have radically improved hours of duty for the night staff within the past two years.

Student Nurses' Health.

Seventy-four per cent. of the training schools now arrange at least three health examinations for student nurses within the three years of their course. More laboratory work is being included in this. Consistent improvement is being shown.

The practice of the Superintendent of Nurses procuring certificates of age and education before accepting an applicant for admission into a training school is being established quite rapidly. There are few exceptions now. A circular letter of July, 1939, helped to clarify a few points. The help of the Registrar of the Department of Education has been invaluable to this office.

Most schools show an increase in enrolment in the past year. All residences are filled to capacity. Superintendents of Nurses generally report marked increases in the number of applicants in the past year. This permits more selection.

Four hospitals have opened new residences, all being built on a satisfactory scale. The assistance of the Public Works Department has been appreciated.

Teaching Staff.

Five additional schools have appointed a specially trained full-time Instructor for the first time. One school has appointed a public health instructor.

Attention has been given to the Surgical Technique of the hospital wards, and also to certain routine procedures and equipment.

In 20 hospitals a short talk on the aims of the modern public health programme was given to student nurses.

A conference with head nurses and supervisors was held in 41 hospitals to discuss a ward teaching topic.

Council of Nurse Education.

Six regular meetings of the Council of Nurse Education were held when routine business as well as special work in connection with Provincial Examinations was covered.

Following the declaration of War a special meeting was called in September to consider ways and means of meeting any shortage which might arise in nursing services, either at home or abroad. It was recommended by the Council that Superintendents be asked to increase enrolment so that at least 300 additional students should be in training and to this end some 35 hospitals were selected, keeping in mind the activities of certain services necessary for teaching so that students already in training would not lose any necessary experience through increased classes. The response was gratifying. When all reports were received it was found that there was an increase in the September enrolment of 443 student nurses over 1938. The Superintendents reported that they had long waiting lists for 1940 and that classes had been filled to capacity.

The following Table will show that there has been a gradual increase in enrolment over a period of years throughout the Province:

1933.....	3,063	1936.....	3,176
1934.....	3,069	1937.....	3,305
1935.....	3,047	1938.....	3,555
	1939.....		3,998

Educational Qualifications.

It is gratifying to note that over a period of years steady progress has been made in improving educational qualifications for applicants to training as shown in the following statement. Candidates holding Normal Entrance Standing or more advanced certificates:

1927.....	14.7%	1938.....	59%
1937.....	45%	1939.....	74.7%

Discontinued Training Schools.

During 1939 the training school in connection with the Public General Hospital, Smith's Falls, was discontinued.

Reciprocal Arrangements.

Arrangements for reciprocal registration were satisfactorily completed with the Scottish Nursing Council in October, 1939.

Applications from New Zealand and Newfoundland for reciprocity will be considered in 1940, when fuller reports have been received.

Amendment to Nurse Registration Act—re all types of training for Nurses.

On the recommendation of the Honourable the Minister of Health, a Joint Committee, composed of representatives of the Registered Nurses' Association of Ontario and the Council of Nurse Education, was called in 1938 to consider the advisability of offering a definite course of training for practical nurses. One meeting was held in 1939 to consider tentative plans. However, activities were suspended following the declaration of War. In the meantime certain information was secured and will be considered by the Joint Committee early in 1940 when it is hoped that some definite plans may take shape.

History of Nursing Slides.

This loan service has been greatly appreciated by training school Superintendents and Instructors of Nurses. While the service is slow it has, as was hoped in the beginning, encouraged a number of schools to build up their own collection of teaching material.

STATEMENT OF REGISTRANTS

Total number registered, 1939.....	1,192
Total number taking examinations, 1939.....	1,277
Total number registered since 1923.....	23,975

STATEMENT OF REVENUE

Registration Fees.....	\$ 6,475 00
Re-Registration Fees.....	\$ 15,014 00
Training School Records.....	79 00
Examination Fees.....	5,674 00
Miscellaneous.....	36 85
	\$ 27,278 85

DIVISION OF DENTAL SERVICES

F. A. KOHLI, D.D.S, Director

During the past year a considerable number of municipalities have taken advantage of the grant to aid in establishing school dental services. In municipalities of 20,000 or over, the regulations require that equipment be installed either in the schools or in some central clinic. Municipalities of less population have the option of either installing equipment or making a contract for the work to be done in the office of the local dentists. As a properly equipped clinic in the schools has obvious advantages, provision is made in the grant for a generous rebate of the cost of equipment. The grant also provides 20% or 30%—according to population—of the operating costs which will include salary to the dentists and dental supplies.

Educational booklets have been distributed to school children; and notification of defects forms supplied to dentists making a survey of the mouth health of the children. The numerous requests for this material has shown an increasing interest in oral hygiene, throughout the province.

A much needed dental service has been given to the children in unorganized territory by the dental car. The car, travelling on the Canadian Pacific Railway line, has been in the Kenora and Thunder Bay area during the year, and the dentist in charge finds there is a considerable amount of work to be done.

As of April 1st, 1939, the plan of emergent dental treatment for relief recipients was discontinued. However, it was later decided to carry on the plan in unorganized territory only. As the municipalities have not provided, to any extent, for those unable to pay for the services of a private dentist, it is hoped that some means of obtaining necessary extractions and dentures will be made available in the near future.

The dental clinic in each of the Ontario Hospitals has been regularly inspected, and, where necessary, consultation service given by the Director. A satisfactory clinic routine has been established, whereby an oral examination and dental radiographs are made of new admissions to the hospitals; all other patients are given necessary attention; and patients encouraged to give special attention to oral hygiene. The Central Laboratory has required the added services of a part-time mechanic in order to keep up with the demand of the prosthetic work. In view of a new unit being added to the Woodstock Hospital it was thought advisable to change this clinic from a part-time to a full-time service.

The dental staff is well represented in the Canadian Dental Corps by Dr. R. P. Markle, from Brockville Hospital and Dr. H. R. McLaren, from Hamilton Hospital.

HEALTH EDUCATION

MARY POWER, B.A.

I. Public Health Education.

Health Education of the general public during the year was limited to distribution of literature. Displays were prepared for: the meeting of the Ontario Medical Association at Hamilton in June; the meeting of the American Hospitals Association at Toronto in September; the International Ploughing Match which was held this year at Brockville, in October. Upon request of the Deputy Minister of Education, our office co-operated in the setting-up of an exhibit on health education in schools in the Education Section of the Canadian National Exhibition. Routine office activities included correspondence which reached a total of 1,815 incoming letters, and outgoing letters to the number of 1,730.

Method of Distribution of Health Literature—General.

The policy of the Department is to fill all orders from private physicians direct and send material from central office. Requests from teachers for health education in the schools are handled as outlined in Section II of this report. With regard to requests from individuals or organizations of lay people in rural areas the material is sent direct from central office. This is in accordance with arrangements made with rural medical officers of health, based on the difficulty of transferring the material from the office of the local Board of Health to the residence of the inquirer.

Requests from cities, towns and villages are acknowledged and referred to the local Health Officer, together with our offer to forward material in any quantity he may desire. This procedure gives the local Officer of Health a knowledge of the number and nature of requests for help in health education as expressed by the residents of his community. It makes for acquaintance and closer contact between him and his public. It allows him to assume the responsibility which is rightly his and permits the central office to aid him in meeting his obligations. The Medical Officers of Health have expressed their satisfaction with regard to the working out of this policy.

Distribution to Special Groups:

1939 witnessed a change in procedure with regard to distribution of material to special groups. The first group to be supplied was the local public health nurses who include school health work in their programme. A budget of reference material to help the nurse in her work with the teachers was compiled and sent to 275 nurses. This entailed the handling of 18,500 pieces of material. Instructresses in training schools for nurses in the hospitals of Ontario were sent budgets to assist in their work of hygiene instruction. This group included 70 training schools and the total pieces required for the budgets was 5,000. The demand on the part of those sponsoring home nursing classes resulted in a large number of requests for material to be used in this connection.

Extent of Distribution.

Of the leaflets on health topics distributed during the year, "The Baby," covering the care of the child to six years of age, still leads in popularity. The distribution over the year reached a total of more than 30,000 copies. The

publication of "Safe Milk" was timely, as there has been a great demand during the current year on the part of the general public and teachers for authoritative statements upon pasteurization, production and care of milk. The advanced legislation with regard to tuberculosis has created a demand for leaflets on various aspects of the control, care and prevention of this disease. At the present time this demand is being met through the kind co-operation of the Canadian Tuberculosis Association.

We beg to acknowledge with many thanks the splendid co-operation of the various life insurance companies operating in Canada who have given generously from their stock of leaflets for distribution through our office. In the main these have been bulletins referring to nutrition and other topics upon which we have no publications available. We wish also to express our appreciation to the Canadian Welfare Council for their assistance in the matter of literature for distribution.

Health Education Aids:

The use of films, slides and radio broadcasts as applied to health and education is increasing in effective technique from year to year. Fortunately, we were able to attend some of the demonstrations and lectures of a Course on Visual Education sponsored by the Department of Education and held for the first time this year. The Course was under the leadership of Mr. J. G. Cons, an educationalist of experience in this special field who came from England for three weeks in August.

A thorough survey of films and equipment belonging to the Department was made during the Fall. The Board of Censors of the Department of the Provincial Treasury co-operated in the matter of testing the films of standard width, together with those of narrow gauge which could not be shown on our machine. The result of the appraisal shows that the equipment on hand is no longer suitable for use, with the exception of one projector for 16mm films and one projector for slides. With the exception of three of the 35mm size, the total library of films had to be discarded, owing to bad condition and out-dated techniques and set-up, together with the fact that 28mm films are no longer on the market nor are machines of this size in use, except in a very few cases throughout the province. Our loan service of films and equipment to local health agencies has been discontinued for some time. It will not be possible to resume this as a departmental service until such time as we have supplanted the old films and equipment with the prevailing type of machine and a library of films, both silent and sound, in the 16mm size.

II. School Health Education.

The office was again asked to take responsibility for the details of organization for the Summer Course in Health Education, an accredited course leading to professional credit by the Department of Education, and operated jointly by the latter department and the Department of Health. This year the attendance numbered 153; 34 teachers coming from cities and 119 from towns, villages and rural schools. In all, 71 inspectorates were represented. The programme this year again included the provision of a complete physical examination by a group of private physicians upon payment of a nominal fee by the students. Nursing service was maintained throughout the course for the students. This was made possible through the kind co-operation of the public health nursing staff of the Department. A demonstration school was again operated with an attendance of 100 children in Grades I to VIII.

One item of importance with regard to our efforts in school health education, was the publication during the year by the Metropolitan Life Insurance

Company of Monograph No. 11 in their School Health Series. A statement of our efforts in the field of teacher-training is evidently of interest to health and education authorities throughout the United States and Canada, as within the first month after publication requests were received that the monograph be sent to training schools and colleges in practically every province of Canada, and 36 States in the Union. The Company was good enough to supply us with copies for distribution to all teachers who had registered in the seven sessions of the summer course since its inception. This was in acknowledgment of the contribution which these teachers have made, singly and as a group, to the organization of the Summer Course in Health Education throughout the years of its existence.

During the year an attempt was made to visit the teachers who have taken the course. We again held "Open House" on Saturday morning for those who can call at our office. Correspondence with inspectors relating to the Certificate in Health Education represents a large part of our correspondence work during the year. Revision of the mailing list for teachers is a routine procedure following the opening of school in September. This consists of sending 1,000 notices and the checking and entry of the replies.

During the school year 1938-39 the office worked with a large number of teachers in various types of school in the matter of enterprises connected with healthful living and health topics in their regular school work. The results of these endeavours were sent to Toronto for presentation to the teachers in attendance at the Summer Course in Health Education; they were retained and shown in the educational section of the Canadian National Exhibition upon the request of the Deputy Minister of Education.

During the year a check-up was made with regard to the various sources in Canada, the United Kingdom and the United States, from which teachers and nurses may obtain material for their work in health education in the school. The teachers who attended the summer course were sent budgets to the number of 760, representing a total of 10,000 pieces of material; bound books for teachers' reference to the number of 371 were sent to 221 teachers. To 81 staff members and inspectors 86 books were loaned during the year.

Service to teachers who have not attended the Summer Course in Health Education dates only from the beginning of the school year 1938-1939, at which time "Health — A Handbook of Suggestions for Teachers in Public and Separate Schools" was distributed free of charge to each class-room in the elementary schools as a joint contribution from the Department of Education and the Department of Health. During 1939 help was given to this group of teachers as follows: 200 teachers in the elementary schools; 82 in high schools, and 17 in normal schools, entailing the assembly and mailing of 4,500 pieces of material.

Visiting of schools in the Windsor district with regard to the work of health education in the classroom was planned to coincide with the regional and national meetings of the Progressive Education Association. Contacts made in this way were most valuable in making possible a comparison of our work with that of other agencies. Many new ideas were gained through attendance at the formal sessions, personal interviews and group conferences during the meetings.

III. Ontario Health Officers Association:

The annual conference of the Ontario Health Officers' Association was held this year at the Royal York Hotel, Toronto, June 12, 13 and 14th, in conjunction with the Twenty-eighth annual meeting of the Canadian Public

Health Association. The sessions of the conference were presided over by Dr. T. H. McColl, Medical Officer of Health for the Town of Tilbury. The registered attendance reached a total of 451 and the members made the meeting a memorable one by the extent of their participation and their sustained interest in the proceedings.

The afternoon programmes and the dinner conference were general sessions of both associations, giving all members an opportunity to hear prominent speakers in the field of preventive medicine and public health.

In order to welcome to membership in the Association those Medical Officers of Health, newly appointed during the year, a special meeting was arranged. This provision made it possible for the group to discuss various problems of local health administration with the Deputy Minister; the Chief Medical Officer of Health; the Solicitor to the Department; and the Directors of the various Divisions. The large attendance of the new appointees and the comprehensive discussion which followed suggests the advisability of including such special meetings as an integral part of the annual conference.

A Library Unit was operated during the entire Conference by Miss Rita Wright, librarian of the Department. The publishers were most co-operative in loaning new publications and helped to make the display complete and up-to-date. The many and varied requests for information made manifest the deep interest of the members and the need for such service at the conference. Requisitions in large numbers were made out by the medical officers at the booth, the filling of which entailed the assembly and mailing of 7,620 pieces of literature. After two years of experimentation, the library unit is now recognized as an important medium for staff education, and as such is established as a regular feature on the programme of the annual meeting.

At the call of the President, the Executive met previous to the meeting. A complete attendance was registered as follows: Dr. C. A. Warren, president; Doctors F. A. Ladouceur, H. E. Welsh, H. B. Kenner, J. Edgar Davey, G. B. Stalker, W. E. Brown, C. H. Bird, J. W. Mackie, H. M. Young, J. C. Gillie, and the secretary, Miss M. Power.

Standing committees were appointed and later reported to the general meeting as follows:

Committee on Accident Prevention: Your Committee beg to submit an interim report requesting that it be allowed to continue for the ensuing year. We beg to request also that we be allowed to add to the personnel of the committee.

We hope to be able to submit a comprehensive report upon this important subject at the next conference of the Association.

Members:—Dr. C. E. McLean, East York.; Dr. C. B. Kelly, Port Hope, L. A. Pequegnat, Convenor.

The Committee on Resolutions brought in the following report:

Your Committee begs to bring in the following report submitting for consideration of the Ontario Health Officers' Association resolutions as listed below:

1. That the Department of Health of Ontario be asked to formulate a plan providing for a new section in this Association to be known as the Section of "Sanitary, Food and Dairy Inspectors;" and that this report be ready for submission to the members of this Association at the next annual meeting.

Moved by Dr. C. A. Harris; seconded by Dr. W. E. Brown.

2. Whereas municipalities are loathe to initiate or extend nursing services in the municipality, on account of financial difficulties, we request the Honourable the Minister of Health to press for Government aid to assist in these services.

Moved by Dr. W. Ward Woolner; seconded by Dr. J. W. Fraser.

3. We beg to again bring to the attention of the Department of Health the necessity of further study of the problem of the tuberculosis rebel as to effective hospitalization.

Moved by Dr. J. E. Davey; seconded by Dr. C. A. Warren.

4. That the Ontario Department of Health be requested to make a survey of the Trachoma situation in this Province with a view to finding:

(1) The number of cases in the province.

(2) The number of native-born Canadians affected.

Moved by Dr. J. E. Davey; seconded by Dr. F. A. Adams.

5. That the Department of Agriculture of Ontario be requested to carry on a campaign of education in dairy farm sanitation among the farmers of the province.

Moved by Dr. F. A. Ladouceur; seconded by Dr. C. H. Bird.

6. That the following committee of three be appointed to consider the question of the salary of the Medical Officer of Health and also his expenses relative to attendance at the Annual Meeting of the Health Officers; and that this committee meet with the Honourable the Minister of Health before the closed of this conference: Dr. T. H. Rutherford, of Burford; Dr. C. H. Bird, Gananoque, and Dr. F. A. Ladouceur, of Casselman.

Moved by Dr. J. W. Mackie; seconded by Dr. H. M. Young.

All of which is respectfully submitted

Members:—Dr. W. J. Cook, Dr. W. Ward Woolner; Dr. J. W. Fraser, Convenor.

The Committee on Nominations (Members:—Dr. H. M. Young, Dr. G. Murray Fraser, Dr. W. Ward Woolner, Convenor,) brought in a report as follows, which was adopted unanimously and resulted in the election of the following officers for the year 1939-40:

Honourary President—The Honourable Harold J. Kirby, K.C., Minister of Health.

President—Dr. C. A. Warren, M.O.H., York Township.

First Vice-President—Dr. F. A. Ladouceur, Casselman.

Second Vice-President—Dr. H. B. Kenner, Stratford.

Secretary—Miss M. Power.

Executive Committee—Composed of representatives of the eight districts of the Ontario Medical Association—Dr. C. A. Harris, London; Dr. G. B. Stalker, Hanover; Dr. J. E. Davey, Hamilton; Dr. W. E. Brown, Orillia; Dr. C. H. Bird, Gananoque; Dr. G. Murray Fraser, Peterborough; Dr. J. W. Mackie, Lansdowne; Dr. H. M. Young, Iroquois Falls; Dr. J. C. Gillie, Fort William.

PROGRAM

MONDAY, JUNE 12th

9.00 a.m.: REGISTRATION

ONTARIO HEALTH OFFICERS ASSOCIATION

9.30 a.m. Ball Room

Chairman—Dr. T. H. McColl, Medical Officer of Health, Tilbury, and President, Ontario Health Officers Association.

New Legislation and Regulations—Dr. K. G. Gray, Dr. H. A. Ansley, Dr. G. C. Brink, Dr. J. G. Cunningham and Dr. F. M. R. Bulmer, Department of Health of Ontario.

Reporting of Communicable Diseases—Dr. H. A. Ansley, Epidemiologist, Department of Health of Ontario.

Recent Advances in the Control of Venereal Disease—Dr. A. L. McKay, Department of Health of Ontario.

Medical Service in Industry—Dr. J. G. Cunningham, Director, Division of Industrial Hygiene, Department of Health of Ontario.

CANADIAN PUBLIC HEALTH ASSOCIATION

SECTION OF VITAL STATISTICS AND EPIDEMIOLOGY

10.00 a.m. Hall D

Chairman—Dr. L. A. Pequegnat, Deputy Medical Officer of Health, Toronto.

The Low Mortality Rate from Tuberculosis in the Jewish Race—Dr. Eugene Gagnon, Assistant Director and Demographer, Department of Health, Montreal.

Reports of Committees:

The Committee on the Certification of Causes of Death—Dr. R. D. Defries.

The Sub-Committee on Stillbirth Registration and Certification—Dr. A. H. Sellers.

The Sub-Committee on the Confidential Death Certificate—Dr. Paul Parrot, Quebec.

LUNCHEON MEETING, 12.30 p.m. PRIVATE DINING ROOM No. 10

Review of the Paris Revision of the International List of Causes of Death—Dr. Haven Emerson, Director, De Lamar Institute of Public Health, Columbia University, New York.

MONDAY, 2.15 P.M.

CANADIAN PUBLIC HEALTH ASSOCIATION

ONTARIO HEALTH OFFICERS ASSOCIATION

Banquet Hall

Chairman—Dr. R. E. Wodehouse, Deputy Minister of Pensions and National Health, Canada, and President of the Canadian Public Health Association.

Presidential Address—Dr. T. H. McColl, Tilbury, Ont., President of the Ontario Health Officers Association.

Current Practice in Communicable Disease Control—Dr. Haven Emerson, Director, De Lamar Institute of Public Health, Columbia University, New York.

The Value of Present Control Measures in Communicable Diseases—Dr. R. B. Jenkins, Chief, Division of Epidemiology, Department of Pensions and National Health, Ottawa.

Some Observations in Respect to General Paresis—Dr. B. T. McGhie, Deputy Minister of Health, Province of Ontario.

Diphtheria Immunization—Dr. D. T. Fraser, Connaught Laboratories and School of Hygiene, University of Toronto.

TUESDAY, JUNE 13th, 9.15 A.M.

ONTARIO HEALTH OFFICERS ASSOCIATION

Banquet Hall

Chairman—Dr. T. H. McColl, President.

School Dentistry—Dr. F. A. Kohli, Director of Dental Services, Department of Health of Ontario.

Treatment of Scabies—Dr. D. V. Currey, Medical Officer of Health, St. Catharines, Ont.

Treatment of Congenital Syphilis—Dr. E. A. Morgan, Toronto.

Ontario Cancer Clinics—Dr. A. Hardisty Sellers, Medical Statistician, Department of Health of Ontario.

The Place of Tuberculin Testing in the Control of Tuberculosis—Dr. M. H. Brown, Connaught Laboratories and School of Hygiene, University of Toronto.

Interpretation of Laboratory Results—Dr. A. L. MacNabb, Director, Division of Laboratories, Department of Health of Ontario.

The Role of Vermin in the Transmission of Infectious Disease in Man—Dr. W. B. McClure, Division of Laboratories, Department of Health of Ontario.

Sewage Disposal for Private Residences and Public Buildings—Dr. A. E. Berry, Director, Division of Sanitary Engineering, Department of Health of Ontario.

SECTIONS OF PUBLIC HEALTH NURSING AND MENTAL HYGIENE

Ball Room

Chairman—Miss Edna L. Moore, Reg. N., Chairman of the Public Health Nursing Section; and Dr. C. G. Stogdill, Vice-Chairman of the Mental Hygiene Section.

The Amalgamation of Three Specialized Services into a Community Health Program: A Review of Five Years' Experience in Hamilton—Dr. J. E. Davey, Assistant Medical Officer of Health, Hamilton. Mrs. Agnes Haygarth, Director of Public Health Nursing Department of Health, Hamilton.

The Rehabilitation of the Mentally Ill—Dr. C. A. Buck, Department of Health of Ontario.

11.30 a.m.—Business Meeting, Public Health Nursing Section. Reports of Committees.

SECTION OF VITAL STATISTICS AND EPIDEMIOLOGY

Hall D

Chairman—Dr. L. A. Pequegnat, Deputy Medical Officer of Health, Toronto.

Some Observations on Venereal Disease Statistics in Canada—Dr. M. F. McGavin, Department of Epidemiology and Biometrics, School of Hygiene, University of Toronto.

Illness among 35,000 Civil Servants—Dr. F. S. Burke, Chief Medical Investigation Division, Department of Pensions and National Health, Ottawa.

Some Fallacies in Vital Statistics—Dr. N. E. McKinnon, Connaught Laboratories and School of Hygiene, University of Toronto.

Population Estimates—Mr. M. C. MacLean, M.A., Chief, Division of Social Analysis, Dominion Bureau of Statistics, Ottawa.

Analysis of Goitre Cases treated in the General Hospital and Hotel Dieu, Kingston, from 1930-1938, with special reference to Locality and Type of Disease—Dr. J. Wyllie, Professor of Preventive Medicine, Queen's University.

The Development of the St. Jean-Iberville-Laprairie-Napierville County Health Unit, St. Jean, Que.—Dr. J. A. Lapierre, Medical Officer of Health.

An Outbreak of Acute Anterior Poliomyelitis in Alberta during the Winter Season—Dr. A. C. McGugan, Director, Division of Communicable Diseases, Department of Public Health of Alberta, Edmonton. (Presented by Dr. Malcolm R. Bow, Deputy Minister of Public Health of Alberta).

TUESDAY, 2.15 P.M.

CANADIAN PUBLIC HEALTH ASSOCIATION

ONTARIO HEALTH OFFICERS ASSOCIATION

Banquet Hall

Chairman—Dr. R. E. Wodehouse, Deputy Minister of Pensions and National Health, Canada, and President of the Canadian Public Health Association.

The Program of Medical Care in Manitoba—Dr. F. W. Jackson, Deputy Minister of Health and Public Welfare, Winnipeg.

The Present Program of Medical Care in England and Wales—Sir Arthur MacNalty, K.C.B., K.H.P., Chief Medical Officer, Ministry of Health, London.

The Present Situation regarding the Adequacy of Medical Care in the U.S.A.—Dr. Nathan Sinai, Professor of Hygiene and Preventive Medicine, University of Michigan, Ann Arbor.

The Present Situation regarding the Adequacy of Medical Care in Canada—Dr. Grant Fleming, Dean of the Faculty of Medicine and Director of the Department of Public Health and Preventive Medicine, McGill University, Montreal.

TUESDAY, 7.15 P.M.—ANNUAL DINNER

CANADIAN PUBLIC HEALTH ASSOCIATION

ONTARIO HEALTH OFFICERS ASSOCIATION

Presidential Address—Dr. R. E. Wodehouse, Deputy Minister of Pensions and National Health, Canada, and President of the Canadian Public Health Association.

Address: The Progress of Health Work and Social Services in the British Colonies—Sir William McLean, K.B.E., Representative of the British Secretary of State at the New York World's Fair, 1939.

Presentation of awards to the winning units in the 1938 Canadian Rural Health Conservation Contest—Dr. Edward S. Godfrey, Jr., Commissioner of Health, New York State, and President-elect, American Public Health Association.

Presentation of honorary life membership in the Canadian Public Health Association to Sir Arthur MacNalty, K.C.B., Dr. A. J. Douglas, Winnipeg; Dr. J. J. Cameron, Antigonish, N. S.; and Dr. J. K. McLeod, Sydney, N. S. To be presented by The Hon. Harold J. Kirby, K.C., Minister of Health of Ontario, and Honorary President, Canadian Public Health Association and Ontario Health Officers Association.

WEDNESDAY, JUNE 14th, 9.15 A.M.—SECTION MEETINGS

CANADIAN PUBLIC HEALTH ASSOCIATION

ONTARIO HEALTH OFFICERS ASSOCIATION

SECTIONS OF VITAL STATISTICS AND EPIDEMIOLOGY AND PUBLIC HEALTH NURSING

Banquet Hall

Chairmen—Dr. L. A. Pequegnat and Miss Edna L. Moore.

The Place of the Public Health Nurse in a Community Health Program—Dr. Reginald M. Atwater, Executive Secretary, The American Public Health Association, New York.

The Organization and Operation of Public Health Nursing—Miss Edna L. Moore, Reg.N., Chief Public Health Nurse, Department of Health of Ontario.

The Significance of the Phage Typing of *B. typhosus* in relation to Epidemiology—Dr. James Craigie, Connaught Laboratories and School of Hygiene, University of Toronto..

The Use of Craigie's Phage Typing of the *S. typhi* as Applied in the Epidemiological Investigation of Sources of Infection—Dr. Kenneth F. Brandon, The Aetna Life Insurance Company, Hartford, Conn.

INFECTIOUS JAUNDICE:

Epidemiology—Dr. R. P. Hardman, Division of Preventable Diseases, Department of Health of Ontario.

Laboratory Findings—Dr. A. L. MacNabb, Director, Division of Laboratories, Department of Health, Ontario.

An Outbreak of Staphylococcal Food Poisoning in Hamilton, Ontario: Epidemiological Investigation—Dr. James Roberts, Medical Officer of Health.

Laboratory Findings—Mr. R. J. Wilson, M.A., Department of Hygiene and Preventive Medicine, University of Toronto.

SECTION OF INDUSTRIAL HYGIENE

Hall D

Chairman—Dr. R. H. Robson, Walkerville, Ont.

The New Division of Industrial Hygiene of the Ministry of Health, Province of Quebec—Dr. F. J. Tourangeau, Director.

The Practice of Preventive Medicine by a General Practitioner among Employees in a Small Factory—Dr. H. M. Harrison, Medical Director, Canadian Medical Institute, Toronto.

Arrangements for the Control of Ill-health in a Group of Small Factories using a Physician and Nursing Services—Dr. F. M. Griffin, Toronto.

Control of Sickness in a Large Group of Lumber-camp Workers—Dr. W. I. Taylor, Foleyet, Ontario.

Discussion—

Health Supervision for:

Cardiovascular Disease in Railway Employees—Dr. Dowd, Canadian National Railways Company, Montreal.

Neuroses in a Large Office Group.—Dr. F. S. Parney, Director, Division of Industrial Hygiene, Department of Pensions and National Health, Ottawa.

Gastro-intestinal Diseases in Steel Workers—Dr. Day, Steel Company of Canada, Hamilton.

LABORATORY SECTION

Concert Hall

Scarlet Fever Immunization in Edmonton, Alberta—Dr. G. M. Little, Medical Officer of Health, Edmonton. Presented by Dr. R. B. Jenkins, Chief, Division of Epidemiology, Department of Pensions and National Health, Ottawa.

Discussion—Dr. G. Murray Fraser, Medical Officer of Health, Peterborough, Ont.

Active Immunization against Tetanus using Tetanus Toxoid.—Dr. Helen Plummer, Connaught Laboratories and School of Hygiene, University of Toronto.

The Health Officer and Smallpox Vaccination—Dr. C. A. Warren, Medical Officer of Health, York Township, Ontario. Dr. Ad. Groulx, Director, Department of Health, Montreal

Essentials in a Program of Diphtheria Immunization:—

Rural: Dr. A. R. Foley, Epidemiologist, Ministry of Health of Quebec.

Dr. C. R. Donovan, Epidemiologist, Department of Health and Public Welfare of Manitoba, Winnipeg.

Dr. C. D. Farquharson, Medical Officer of Health, Scarborough Township, Ont.

Urban: Dr. T. A. Lomer, Medical Officer of Health, Ottawa.

Control of Whooping Cough by Vaccination—Dr. Nelles Silverthorne, Connaught Laboratories, University of Toronto, and Hospital for Sick Children.

Discussion—Dr. H. A. Ansley, Department of Health of Ontario.

MENTAL HYGIENE SECTION

Library

Chairman—Dr. C. G. Stogdill, Department of Public Health, Toronto, and Vice-Chairman of the Section.

The Convulsive Child in the Community—Dr. W. W. Barraclough, Hospital for Sick Children, Toronto.

The Value of Foster Home Care in Dealing with Problem Children—Dr. E. P. Lewis, Director, Out-Patient Department, Toronto Psychiatric Hospital.

Psychiatric Social Work with Recessive Adolescents—Mrs. L. Dalziell, Division of Mental Hygiene, Department of Public Health, Toronto.

PUBLIC HEALTH ENGINEERING SECTION

Hall C

Public Health Aspects of Plumbing Inspection—Mr. George F. Fitzsimons, Chief Plumbing Inspector, City of Toronto.

Prevention of Motor Traffic Hazards—Mr. Arthur H. Rowan, Statistician, Motor Vehicles Branch, Department of Highways, Province of Ontario.

Engineering Features of Dairy Layouts and Equipment—Mr. G. A. H. Burn, Sanitary Engineer, Eastern Ontario Health Unit, Alexandria, Ont.

WEDNESDAY, 12.30 P.M.

LUNCHEON, PUBLIC HEALTH EDUCATION SECTION

Address: What Can the University Contribute to Public Health Education?—Professor Roy Fraser, Professor of Bacteriology, Mt. Allison University, Sackville, N.B.

WEDNESDAY, 2.15 P.M.

CANADIAN PUBLIC HEALTH ASSOCIATION

ONTARIO HEALTH OFFICERS ASSOCIATION

Banquet Hall

Chairman—Dr. R. E. Wodehouse.

Some Observations on Compulsory Pasteurization—Dr. A. E. Berry, Director, Division of Sanitary Engineering, Department of Health of Ontario.

Nutrition and the Public Health Officer—Dr. Edward P. Cathcart, Glasgow University, Glasgow, Scotland.

Nutrition in Canada—Dr. E. W. McHenry, Connaught Laboratories and School of Hygiene, University of Toronto.

Some Aspects of the Child Health Program in Canada—Dr. Ernest Couture, Director, Division of Maternal and Child Hygiene, Department of Pensions and National Health, Ottawa.

DIVISION OF LABORATORIES

A. L. MACNABB, V.S., B.V.Sc., *Director*

The volume of work conducted by the Division of Laboratories during the year 1939 shows an increase of 44,397 examinations, which is an increase of 8 per cent. over the year 1938.

The Central Laboratory staff has 71 members. Of this number, 4 are employed for overtime duty and 1 as messenger. The Central Laboratory has a member of staff on duty from 7.30 a.m. to 12 midnight each and every day of the year. During the year 1939, 5 members resigned, 1 enlisted and 1 was transferred. Dr. E. L. Barton was appointed to our staff, effective September 1st, as Assistant Bacteriologist, Group 1. Dr. W. M. Wilson was given leave-of-absence in order that he might serve as Pathologist at the Institute of Public Health, London. Mr. R. Bull, M.A., Miss J. MacAlpine, B.A., and Mr. G. Ross, of the Central Laboratory staff were transferred to the laboratory established in the Government Building, Barrie Street, Kingston.

The following Papers were presented:

"Interpretation of Laboratory Tests," by Dr. A. L. MacNabb. The Ontario Health Officers' Association Meeting.

"Laboratory Diagnosis of Leptospiral Infection," by Dr. A. L. MacNabb. The Ontario Health Officers' Association Meeting.

"Diseases Transmitted by Vermin to Man," by Dr. W. B. McClure. The Ontario Health Officers' Association Meeting.

"Leptospirosis," by Dr. A. L. MacNabb. The Central Canada Veterinary Association Meeting.

At the Christmas meeting of the Laboratory Section of the Canadian Public Health Association the following papers were presented:

"Vi Antigen Agglutination as a Routine Diagnostic Test"—(Preliminary Report)—by Miss V. Crossley, B.A.

"Influenzal Meningitis," by Dr. A. E. Allin, Director, Fort William Branch Laboratory.

"The Routine Diagnosis of Fungus Disease in the Diagnostic Laboratory," Dr. W. B. McClure.

"Statistical Study of Ten Years Diagnostic Pathological Service," Dr. Stuart Penny.

Papers Published:

"Study of Concentration Methods for the Microscopic Smear Examination of Tubercle Bacilli," by Dr. J. W. Bell, in the Canadian Journal of Technology.

"Use of S. Paratyphi B. Type and Group Antigen for the Diagnostic Agglutination Test," by Miss V. Crossley, B.A., Miss H. Conway, B.A., and Miss M. Rankin, B.A., in the Canadian Journal of Technology.

"Interpretation of Serodiagnostic Procedures in Syphilis," by Dr. A. L. MacNabb and Miss G. Matthews. Canadian Public Health Journal.

Investigation Work:

- (1) Study as to the use of S. Typhi Vi Antigen as a routine diagnostic test.
- (2) Serological study of Blood Sera from Patients administered T. A. B. vaccine by the subcutaneous and intracutaneous route.
- (3) Quantitative serodiagnostic tests for specific infection.

Following is a brief résumé of the work conducted by the Division :

Table I attached outlines the number and nature of examinations conducted in the Central and each of the Branch Laboratories.

TABLE I

DIVISION OF LABORATORIES—DEPARTMENT OF HEALTH, ONTARIO

Year of January 1 to December 31st, 1939

To The Deputy Minister of Health:—

ROUTINE PROCEDURES.		NUMBER OF EXAMINATIONS							
Type of Specimen	To- ronto	Lon- don	Ot- tawa	Fort Wil- liam	King- ston	North Bay	Peter- boro	Sault Ste. Marie	Total
BACTERIOLOGY:									
Diphtheria—Direct Smears.....	2281	1042	1137	994	51	100	132	3	5740
Cultures.....	6173	1298	2971	514	514	418	155	1213	13256
Virulence Tests.....	209	7	1	1	.....	5	.....	1	224
Kellogg Tests.....	74	.....	.....	.....	.....	.....	.....	.....	74
Further Tests.....	550	.....	.....	.....	.....	370	.....	748	1668
Tuberculosis—									
Microscopic Smears.....	11783	5047	2621	1630	2503	1235	441	273	25533
Guinea Pigs Inoculated.....	884	15	19	64	.....	80	12	1	1075
Cultures.....	6732	364	872	624	107	571	.....	1	9271
Complement Fixation.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous—									
Pneumonia Typings.....	2302	309	49	330	132	214	21	2	3359
Other Miscellaneous.....	10812	11506	373	2339	600	1445	369	1025	28469
Agglutinations—									
Whole Bloods—S. Typhi.....	2606	1474	257	475	259	242	94	16	5423
Para A.....	2606	1264	251	240	259	242	93	16	4971
Para B—S. Para B. Group	2606	1266	254	482	259	242	94	16	5219
S. Para B. Type..	2606	.....	.....	.....	.....	.....	.....	.....	2606
B. Abortus.....	2606	1429	241	244	259	242	110	17	5148
B. Tularenses.....	2606	306	1	223	.....	242	87	16	3481
B. Para Dysentery Flexner.	45	5	1	.....	.....	.....	.....	.....	51
B. Dysentery Sonne.....	45	.....	.....	.....	.....	.....	.....	.....	45
B. Dysentery Shiga.....	24	.....	1	.....	.....	.....	.....	.....	25
B. Proteus.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leptospira.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Feces Examinations—									
Parasitic Ova.....	166	42	112	16	4	26	1	3	370
Occult Blood.....	47	31	67	18	9	11	5	3	191
Cultural.....	2740	479	100	365	160	398	20	3	4265
Blood Cultures.....	3472	1446	156	320	229	251	120	28	6022
Spinal Fluids.....	576	1060	85	164	92	124	34	37	2172
Sanitary Analysis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Milk (Fluid).....	7446	4331	3356	3371	1442	1179	969	2057	24151
B. Coli.....	6037	2621	3365	978	243	1179	261	10	14694
Phosphatase.....	2523	768	298	412	.....	613	.....	325	4939
Ice Cream.....	.....	341	67	.....	.....	600	.....	.....	1008
B. Coli.....	.....	341	67	.....	.....	.....	.....	.....	408
Phosphatase.....	.....	1	.....	.....	.....	.....	.....	.....	1
Water.....	12329	4111	4652	4086	911	2129	1502	3634	33354
Utensils and Beverage.....	80	184	508	300	.....	.....	36	.....	1108

TABLE I—Continued

ROUTINE PROCEDURES

NUMBER OF EXAMINATIONS

Type of Specimen	To- ronto	Lon- don	Ot- tawa	Fort Wil- liam	King- ston	North Bay	Peter- boro	Sault Ste. Marie	Total
Streptococcal Cultures.....	1307								1307
Germicidal Tests.....	6								6
SYPHILIS:									
Dark Field.....	245	17	11	50	15	77	4	3	422
Blood Sera—S. Kahn.....	64320	19897	17900	8098	5754	12342			128311
Hinton.....	63152	19760	17363	7996	5754	12273			126298
Wassermann.....	1775	1643	804	489	3909				8620
P. Kahn.....	480	3540	6	7		201			4235
Quantitative Tests.....	50	580		25					655
Spinal Fluids—									
K. Wassermann.....	3725	603	465	55	52				4900
S. Kahn.....	2502	494	397	124		93			3610
Colloidal Gold.....	3794	1057	462	221		77			5611
Total Protein.....	2948	106	471	292		3			3820
Gonorrhoea—									
Smear Examinations.....	17495	3472	4519	3360	1742	4519	930	1647	37684
Cultural Tests.....	83		5	12					100
Complement Fixations.....	459	63							522
PATHOLOGY:									
Biopsy.....	8042	2235			3025		658		13960
Autopsy.....	91	13					238		342
CHEMISTRY:									
Milk.....		3364	3433	1176	290	1114	1331	4556	15264
Blood Sugar.....	13899	2988	504	555	370	870	215	648	20049
N. P. N.....	6310	1725				372		16	8423
Water.....	133	31	6					366	536
Coal Samples.....	83								83
Miscellaneous.....	247	468	496	395	75	108	75	1016	3880
Liquors—Alcohol.....	1181								1181
Beers.....	169								169
Spirits.....	292								292
Wines.....	403								403
Cow's Blood—Bang's Infection.....	2593	786		1			1		3381
Mastitic Tests.....		17	82			6			105
Rabies—No. Examined.....	41	10							51
GRAND TOTAL FOR YEAR...	288791	103957	68806	41046	29019	44213	8008	17700	601540

From Table I it will be seen that 601,540 examinations were conducted during the past year, which is an increase of 44,397, or 8 per cent. over the previous year. In reviewing this increase a few phases of the work are worthy of special mention.

The number of specimens of sputum for culture examination for the presence or not of tubercle bacilli showed an increase of 887 or 36 per cent. There was a marked increase in the number of stool specimens examined, the increase being 27 per cent. The number of milk specimens received increased by 14,477, or 49 per cent. over the previous year. This is undoubtedly due to the legislation passed relative to pasteurization. The introduction of the phosphatase test as a means of determining the effectivity of pasteurization has provided an accurate means of assuring such supplies have been pasteurized.

Table II outlines the number of specimens examined in each of the Divisional Laboratories for the years 1935-1939, inclusive.

TABLE II
NUMBER OF SPECIMENS EXAMINED IN EACH OF THE LABORATORIES
FROM 1935-1939 INCLUSIVE

	1935	1936	1937	1938	1939
Toronto.....	214,755	224,564	244,612	267,580	288,791
London.....	75,213	75,207	87,794	95,733	103,957
Ottawa	56,468	56,786	59,755	67,945	68,806
Fort William.....	18,666	24,137	30,014	39,658	41,046
North Bay.....	8,411	11,773	27,249	35,000	44,213
Kingston.....	20,723	20,072	22,008	27,943	29,019
Sault Ste. Marie.....	11,926	11,805	12,225	13,977	17,700
Peterborough.....	8,893	9,175	9,058	9,307	8,008
	415,055	433,519	492,715	557,143	601,540

It will be noted from the above table that the diagnostic work in the Division of Laboratories has increased by 186,485 specimens during this four-year period. Not only has the work increased during this period, but the technical nature of the work has been changed in many instances. The introduction of pneumococcus typing; quantitative test for evaluating the efficacy of treatment in specific infection; and the grouping of streptococcal strains; are a few of the many changes which have been made.

Rabies:—Rabies infection had not been detected by any of our Laboratories from the year 1930 until 1938, when one case was diagnosed. During the past year 41 heads have been submitted to the Central Laboratory. Negri bodies of rabies were demonstrated in 12 instances. Microscopic test was confirmed by animal inoculation test, using both the rabbit and mouse as the test animal.

Since the declaration of war, our Laboratories have endeavoured to assist the Militia, inasmuch as the Administration has made available our diagnostic service. This has affected all our Laboratories to a certain extent, but particularly the London, Ottawa, Kingston and Central Laboratories. The Central Laboratory, in addition to offering the facilities of the routine diagnostic service, is also preparing and distributing Typhoid Paratyphoid Vaccine as required for the Militia.

Table III outlines the number of pneumococcus typings performed in the Central Laboratory in Toronto and also states the type of specimens on which the typing test was made.

TABLE III

INCIDENCE OF PNEUMOCOCCUS TYPES IN 2,337 VARIOUS SPECIMENS
(JANUARY 1, 1939, TO DECEMBER 31, 1939)

TYPE	Sputa	Throat Swabs	Pleural Fluid	Swabs Mastoid and Ear	Spinal Fluids	Miscellaneous
1.....	108	1	12	5	....	....
2.....	87	1	4	3	2	....
3.....	155	5	2	11	1	....
4.....	44	1	1	....	....	1
5.....	36	....	1	2	1	....
6.....	42	....	....	....	....	....
7.....	45	1	....	2	....	....
8.....	77	2	1	1	....	1
9.....	25	1	....	....	....	....
10.....	19	....	....	....	....	....
11.....	34	....	....	....	....	....
12.....	5	1	....	....	....	....
13.....	37	....	....	....	....	....
14.....	8	1	....	....	....	....
15.....	10	1	....	....	....	....
16.....	21	3	....	....	....	....
17.....	31	....	2	....	....	....
18.....	50	....	....	....	....	....
19.....	48	....	1	....	....	....
20.....	28	....	....	....	....	....
21.....	10	....	1	....	....	....
22.....	29	....	....	....	....	....
23.....	26	....	1	3	....	1
24.....	12	....	....	....	2	....
25.....	7	....	....	....	....	....
27.....	4	....	....	....	....	....
28.....	9	....	....	1	....	....
29.....	23	....	....	....	....	....
31.....	15	....	....	....	3	....
32.....	4	....	....	....	....	....
Horlisch**.....	11	....	....	....	....	....
Parmer**.....	2	....	....	....	....	....
Multiple.....	66	....	....	....	....	....
Negative.....	859	77	53	83	5	4
Undetermined	43	....	1	....	....	....
	2030	95	80	111	14	7

**This is a type isolated in the Laboratory for which diagnostic serum has been made.

It will be noted in the above table that there are two types other than Types 1-32, namely, Horlisch and Parmer. Both of these as yet unidentified types were isolated in our Laboratory. Serum was prepared from these and it will be noted in Table III that eleven types of the Horlisch and two of the Parmer strains were identified.

Separate reports follow, covering the pathological tissue work, and the activities of each of the seven Branch Laboratories.

I wish specially to mention the happy associations which it has been my privilege to have with the various Directors, the two co-operating Branch

Laboratories, namely at Queen's University, Kingston, and the Institute of Public Health, London, which have given whole-hearted support and co-operation to every suggestion.

In closing, on behalf of the staff and myself, I wish to express appreciation to the Honourable the Minister and the Deputy Minister for their kind consideration.

PATHOLOGY

S. F. PENNY, M.D., *Pathologist.*

History:

The Section of Pathology of the Central Laboratories of the Ontario Department of Health was started in July, 1930, to provide tissue diagnostic service to institutions and physicians throughout the Province. From 1930 to 1938 the total specimens examined by this laboratory has increased at the rate of 1500 specimens annually. During 1939 the annual increase was considerably reduced, probably due to war conditions during August, September and October. The last two months of the year showed a resumption of the usual rate.

Personnel:

During 1939 the Section was under the directorship of Dr. S. F. Penny, assisted by Dr. H. Doris Howell. In October, 1938, Dr. Ansley was transferred to the Division of Communicable Diseases. However, he still gives help to the section in a consulting capacity. Dr. W. M. Wilson, after completing a period of training in the autopsy service at the Banting Institute, was given training in surgical pathology in this section from March to July. Dr. M. R. Shaver assisted in the diagnosis during the vacation of the director. Dr. E. L. Barton received part time instruction in surgical and autopsy tissue diagnosis from September to the end of the year. No changes were made in the technical staff. The office staff has been considerably changed during the year, Miss J. Dickinson leaving in February after four years' efficient service in the Department. Miss B. Goodman and Miss I. Wallbridge served in a stenographical capacity for five and eight months respectively, both leaving to be married. Miss T. Ransom replaced Miss Wallbridge for the remainder of the year.

Equipment:

The paraffin and frozen-section technique continued in use, approximately one-third of the specimens being cut by the frozen-section method. A marked improvement in efficiency was obtained by the interchanging of the rooms for frozen-section technique and microscopic diagnosis in November of this year.

Diagnostic Services:

The service of this section of the laboratory includes the tissue diagnosis of surgical and autopsy tissue received from hospitals and physicians throughout the Province. For this a charge of one dollar (\$1.00) per tissue, with a maximum of five dollars (\$5.00) for autopsies is made. A twenty-four hour service is given for surgical specimens. In many cases of suspected cancer the diagnosis was made and the result wired within a few hours. In 1930 a total of 608 specimens were examined, in 1939 the total was 8679; 8554 of this total were surgical specimens and 125 autopsies. These specimens were received from 230 communities all over the Province. Tissues from Noranda, Que., are examined occasionally, and for these a charge of two dollars (\$2.00) is made. Of the total number of specimens received 7.3 per cent. were cancerous.

The autopsy service, which has increased from 9 autopsies in 1930 to 1925 for 1939 consists of a few autopsies done by the Director of the section and his assistants, but to a large extent, consists of autopsy tissues sent in from hospitals or physicians. In a few instances, the Department of Health has authorized the staff of the section to assist coroners by travelling to outlying areas to conduct a medico-legal autopsy.

Dr James Miller, of Kingston, consultant pathologist for the Department, Dr. W. L. Robinson, Pathologist for Toronto General Hospital, and Dr. E. Linnell, Professor of Neuro-pathology continued to give consulting service to the section.

Demonstrations and Papers:

During 1939 several demonstrations of methods in use in the pathology section were given to various groups including the Field Course of the School of Hygiene, and at the annual Christmas meeting of the Laboratory Section of the Canadian Public Health Association. Demonstrations of new clear lacquer substituted for covering tissue sections were made at the Laboratory Section of the Canadian Public Health Association annual Christmas meeting. A paper entitled "Statistical Study of Ten Years' Diagnostic Pathological Service" was delivered by the director and Dr. Howell at this meeting.

The following tables show a statistical comparison of the work of the Section from 1930 to 1939 inclusive. The autopsy cases of 1939 are also analysed.

YEAR	Number of Surgicals	Number of Autopsies	Total Specimens	Total Malignant	Per Cent.
1930	599	9	609	130	21.1
1931	2625	46	2671	422	15.8
1932	3083	50	3113	440	14.1
1933	3652	23	3675	392	10.7
1934	4683	33	4716	563	11.9
1935	5553	44	5597	579	10.3
1936	5919	48	5967	595	9.8
1937	6917	87	7004	589	8.4
1938	8512	146	8658	768	8.8
1939	8554	125	8679	637	7.3

REPORT ENDING 1939

Number of communities served.....	230
Number of Hospitals served.....	186
Number of Physicians and Surgeons.....	3000
Number of Frozen Sections.....	2532

AUTOPSY CASES FOR 1939

Autopsy Cases.....	96
Workmen's Compensation Board.....	16
Animal.....	4
Mental Hospitals.....	9
Total Autopsies.....	125

RICHARDSON LABORATORY, QUEEN'S UNIVERSITY KINGSTON

PROFESSOR JAMES MILLER, M.D., D.Sc., F.R.C.P. (E), F.R.C.P. (Can.),
F.R.S.C., *Director*.

I beg to submit the statistics of the work done in the Kingston Branch Laboratory during the past year. A comparison of the figures with those of 1938 and 1937 shows a steady increase.:

1937	1938	1939
22,034	27,943	29,137

The increase during 1939 has been very largely due to a rise in the figures during the last four months owing to the establishment of military camps in the neighbourhood of Kingston.

The number of typings done in cases of pneumonic infection have nearly doubled. Any one familiar with the Neufeld method will realize this means a great deal of expenditure of time on the part of the staff. The usefulness of the test is, however, undoubted. It has contributed largely to the better control of pneumonia in this part of the province.

The number of milk examinations carried out is diminishing, an indication that the dairies of the district are becoming more skilled in the management of their pasteurization plants.

The routine examinations of the water supplies of Kingston Municipality, of the Penitentiary and of the Royal Military College, have, as before, been carried out in the Department of Preventive Medicine of Queen's University under the superintendence of Professor Wyllie. The co-operation between the two laboratories in this matter has been harmonious and entirely satisfactory.

As in former years I should like to express my gratitude to you, Sir, to the Minister of Health and to Dr. MacNabb for your co-operation and for your willingness to supply us with materials of all kinds.

NORTH BAY BRANCH LABORATORY

A. D. McCLURE, B.A., *Director*.

I have the honour to submit for your approval a report on the work done in the North Bay Laboratory for 1939. The number of examinations shows an increase of 9,770 over the previous year. This is an increase of approximately 28 per cent. An examination of the figures shows that this increase is due almost entirely to an increased number of blood specimens submitted for sero-diagnosis for syphilis. The figures for other types of examinations approximate very closely those for the year 1938.

This increased amount of work has kept the staff very busy and I wish at this time to express my thanks to them for their co-operation and efficiency. Might I also express the thanks of the laboratory staff and myself to Dr. MacNabb and his staff for the aid we have received from them from time to time.

PETERBOROUGH BRANCH LABORATORY

C. B. WAITE, M.D., *Director*.

I have the honour to submit my report for the Branch Laboratory, Peterborough, for the year 1939, as follows:

There has been a marked falling-off in the number of bacterial and chemical examinations of milk. There was also a distinct decrease in the smear examinations for gonorrhoea and a lesser decrease in direct examinations for tubercle bacilli.

The decrease in the examinations of milk are undoubtedly due to the introduction of pasteurization on a larger scale, which meant the dropping out of some distributors who were unable to finance pasteurizing equipment. The falling off in examinations of gonorrhoea and T. B. are more difficult to account for. \

There has been a large increase in requests for examinations of throat swabs for haemolytic streptococci. We have, at the present time, no means of determining to what group these streptococci belong. This is something which we shall have to undertake very soon.

There appears to have been a rather wide gastro-intestinal infection throughout the late summer and autumn and the result has been an increase in the number of examinations of whole blood specimens for agglutination and also blood culture. Very few of these gave positive results. In many cases the performing of agglutination tests was of no value whatsoever, but when the tube is there for the blood, the doctor apparently thinks he has to fill it up. We in the laboratory do not know anything about the case and perform the agglutination in case it is of any value.

I wish to thank the Director for his ready co-operation and assistance throughout the year.

FORT WILLIAM BRANCH LABORATORY

A. E. ALLIN, M.D., D.P.H., *Director.*

I have the honour to submit herewith the Annual Report of this Branch Laboratory for the year 1939.

Routine examinations numbered 41,046, an increase of 1,387 examinations, or 3.5 per cent. more than were done in 1938.

One routine examination was added—the Scharer Phosphatase Test on pasteurized milk. 412 of these tests were made.

Pneumococcus typing, so important a year ago, showed only a slight decrease in numbers. This appeared due to less Pneumonia in the area rather than a decreased interest in the test on the part of the profession. Several physicians requested typing, routinely, for the first time.

Only a few sporadic cases of diphtheria, typhoid fever, and vacillary dysentery occurred in the area served by this laboratory. This accounts for the noticeable decrease in the number of examinations for diphtheria and enteric infections.

Examination for the tubercle bacillus continued to be an important part of the work. In addition to the routine smears, cultures were done on approximately two-fifths of the specimens, including sputa, where indicated in the absence of positive smears. A large number of the specimens were from patients in the Fort William Sanatorium who had had repeated negative smears before specimens were submitted for culture. 60.8 per cent. of the positive cultures were reportable at 4 weeks. The accompanying table illustrates the important role culturing played in the examination of the specimens submitted

During the year 23,078 outfits were prepared and 22,643 distributed. 7,675 packages of insulin and biologicals were also distributed.

I wish to express my thanks to Dr. A. L. MacNabb, Director of Laboratories, for his unfailing co-operation during the past year.

INSTITUTE OF PUBLIC HEALTH, LONDON

A. J. SLACK, Ph.C., M.D., D.P.H., *Director*.

I have the honour to submit herewith the Annual Report of laboratory examinations made during the year 1939 by the Branch Laboratory of the Department located in the Institute of Public Health, London.

Laboratory examinations made during the year numbered 103,957 as compared with 95,733 examinations for the preceding year. This represents an increase of 8,224 examinations or 8.6 per cent. over the total for 1938. Analysis of these figures shows this increase to be spread quite uniformly over the year's work. Some types of examinations show decreases while others are increased, indicating the natural fluctuation in the routine work of a laboratory which conducts a wide variety of examinations. The most marked increases are noted in Pneumococcus typings (116 per cent.), Miscellaneous bacteriology (64 per cent.), Milk examinations (56 per cent.), Pathology (14 per cent.), Blood sugar (13 per cent.), Non-protein nitrogen (5 per cent.), while 683 tests were made on specimens of ice cream during the year. The demand for serological tests on blood and spinal fluid specimens is indicated by substantial increases in this division. The decrease in Kolmer Wassermann reactions is due to the fact that during 1938 this test was replaced by the Hinton test as a routine procedure.

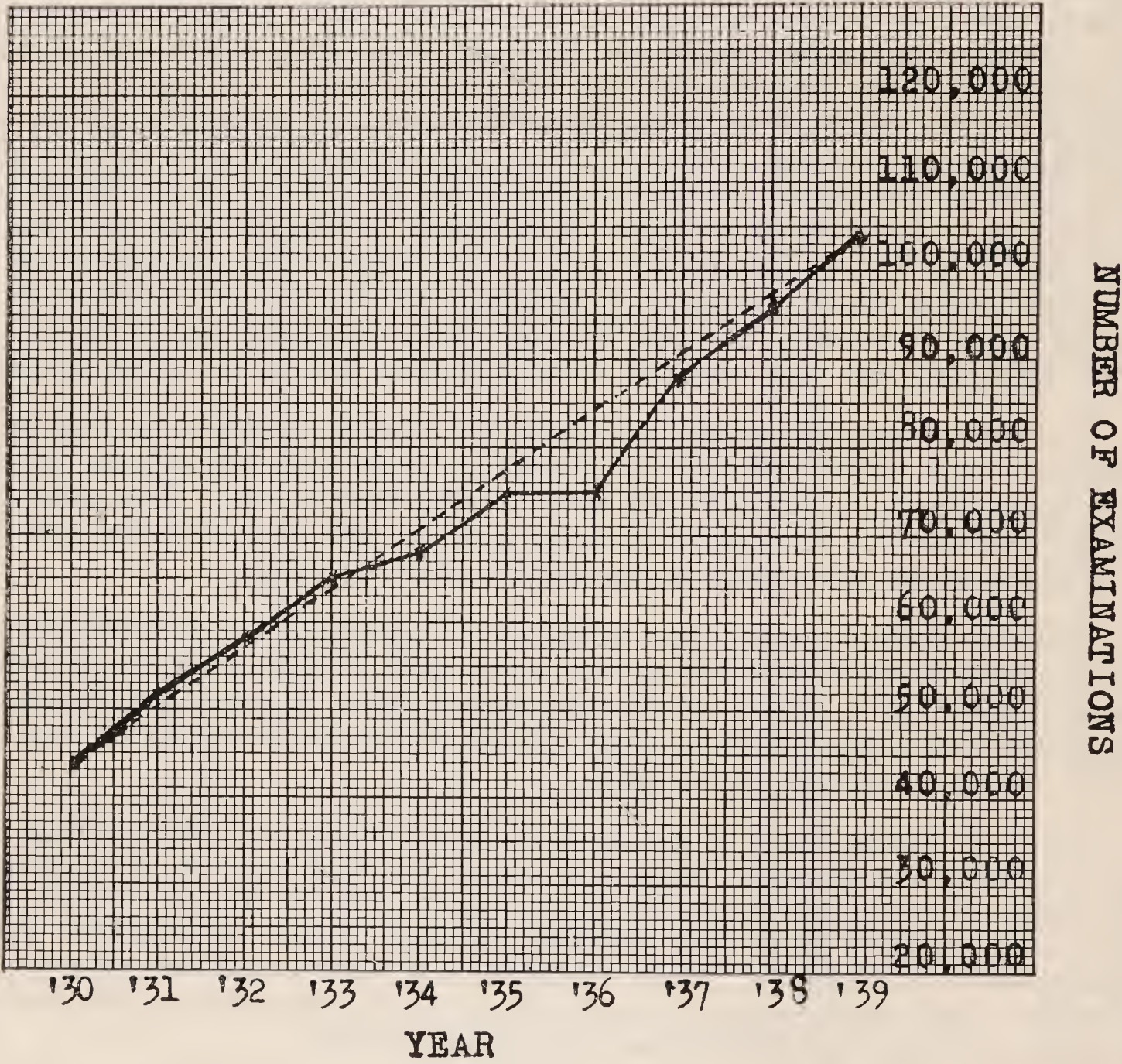
The accompanying graph indicates the steady increase in demand for laboratory work during the last ten years. It shows that the volume of laboratory work has increased 136 per cent. during this decade. The steadily increasing demand for laboratory services is one of the most reliable indications of the value of the laboratory to the district which it serves.

In 1939, 43,650 outfits were reclaimed and prepared for redistribution and 47,732 outfits were distributed as compared with 17,827 outfits reclaimed and prepared and 51,671 outfits distributed during 1938. It may therefore be seen that in 1939 we prepared 91 per cent. of the outfits which we distributed while in 1938 we prepared only 34 per cent.

Dr. E. P. Johns, Chief of the Division of Pathology and Bacteriology of the Institute Staff, was granted "leave of absence" starting July 1st, 1939, to undertake a special investigation for the Department. Dr. Wesley M. Wilson, of the Central Laboratory Staff was likewise granted "leave of absence" by the Department to assume Dr. John's position and duties until his return to the Institute. This interchange of staff is but another example of the close co-operation which exists in the Department Laboratories.

I wish to express appreciation to all the members of the Institute staff for their loyal assistance and to Dr. A. L. MacNabb, Director of Laboratories, for his unfailing co-operation, all of which has contributed toward making 1939 an outstanding year in the history of the Institute.

GRAPH SHOWING ANNUAL INCREASE
IN LABORATORY EXAMINATIONS
MADE BY THE INSTITUTE OF PUBLIC HEALTH
FOR THE ONTARIO DEPT. OF HEALTH
DURING THE DECADE 1930-1939 INCLUSIVE



OTTAWA BRANCH LABORATORY

F. L. LETTS, M.B., D.P.H., *Director*.

I have the honour to submit herewith a summary of routine examinations made at this Branch Laboratory during 1939.

The total number is only 860 more than the total for 1938. During the year we have added the phosphatase test for efficiency of milk pasteurization to our routine.

Of the other procedures recently added, we find culturing for tubercle bacilli of great value. Of 708 specimens negative on direct smear we found 12.8 per cent. positive on culture.

During the year, the building of an addition has provided us with an excellent laboratory unit for examination of milk, water, soft drinks, and restaurant utensils.

We are much indebted to Mr. W. E. MacDonald, Waterworks Engineer, Ottawa, and Dr. T. A. Lomer, M.O.H., Ottawa, for labour and material, and to Dr. A. L. MacNabb, Director of Provincial Laboratories, for equipment.

SAULT STE. MARIE BRANCH LABORATORY

N. F. W. GRAHAM, B.A., M.D., *Director*.

I have the honour to report that the work done in this Laboratory during 1939 has been greatly increased over that of 1938. The number of specimens examined in 1938 was 14,080 while this year's report, 1939, shows a total of 17,700. This has been accomplished only by a great deal of overtime for the staff. Request for additional forms for reporting to the central office has established the necessity of stenographic service for this branch.

During the year 1939, the number of specimens received exceeded the previous year by a considerable increase. The increase in the number of specimens received has been largely due to the number of throat swabs from school children and others suffering from an epidemic Streptococcal infection of the nose and throat. For the past five years the number of infections due to this organism has definitely increased. Of the cultures examined 40 per cent yielded a growth of Beta Haemolytic Streptococcal organisms. None of the cases terminated fatally. In most cases no rise of temperature was noted. A few cases had a temperature of 103° to 105°. A few cases presented symptoms simulating Encephalitis and Meningitis. Cerebral Spinal Fluids examined were negative. Other cases manifested enteric disturbances of short duration at the onset. Palor, weakness, dry tongue, red pharynx, with a tendency to strangulation in an effort to clear the throat were the outstanding symptoms.

Examination of milk has shown a considerable increase due to the activity of the local Sanitary Inspector.

The following examination shows numerical increase over last year:

Diphtheria.....	1091	G. C.....	86
Streptococcus.....	748	Blood Sugar.....	311
Tuberculosis.....	112	N. P. N.....	6
Blood Culture.....	2	Milk (Chem.).....	664
Spinal Fluid.....	24	Water (Chem.).....	92
Milk (Bac.).....	748	Pneumonia Typ.....	2
Milk Phos.....	325		

I wish to acknowledge gratefully the assistance given by our Deputy Minister, Dr. McGhie, and also that of Dr. MacNabb, Director of Laboratories.

INDUSTRIAL HYGIENE DIVISION

J. G. CUNNINGHAM, B.A., M.B., D.P.H., Director.

During the year there have been further evidences of interest and activity in the health supervision instituted by industry for its employees. The Division was represented on certain committees contributing to this main purpose.

- (1) A Committee of the Metal Trades Industry met frequently this year to consider detailed provisions for dust control in foundries and for periodic physical examination of workmen exposed.
- (2) A Committee Advisory to the Industrial Hygiene section of the Federal Department of Health recommended a survey of industry in Canada to determine existing industrial medical services, and recommended that the War Supply Board provide for special reference to health supervision in contracts awarded for war materials. These recommendations have been accepted.
- (3) A Committee of the Ontario Medical Association on Periodic Physical Examination published in its Association Bulletin a list of references to this subject in its application to industry. This met with considerable response.
- (4) A Committee of the Canadian Engineering Standards Association is considering Canadian specifications for welders' filter goggles and glasses. The data for a preliminary report were collected here.

At the annual meeting of the Canadian Public Health Association, a session on Industrial Hygiene, occupied with reports of certain industrial medical services existing in the lumber, railway, steel and cotton industries, attracted a good deal of attention.

Under war conditions when raw materials are available, labor becomes the limiting factor in production. All measures are directed to maximum output and it is then better realized that general sickness is even more important than industrial accidents because of the much greater loss of time involved. Prolonged working hours are more likely to decrease production than to increase it, and many other conditions of work assume greater significance. For industrial operations of such a temporary and emergent nature, it is frequently more practical to control a health hazard by medical supervision of workers than by extensive alterations to process and equipment. It was reported that already by a decree published December 15, 1939, the average hours of work in German industries are limited to eight per day, with a maximum of ten hours (overtime included).

Specific Occupational Hazards.

Nearly one-half of the inquiries instituted by the Division into occupational hazards are upon request of industry itself or of physicians or of the factory inspection branch of the Labour Department, the Workmen's Compensation Board and the Accident Prevention Associations. The co-operation of these agencies is appreciated in bringing possible hazards to attention and in facilitating the carrying out of recommendations for their control. Naturally, some of these requests for assistance are readily met while others involve detailed inquiry, using all the resources at our disposal.

The investigations have covered:

- (a) Silica exposures in polishing, grinding, sandblasting and china manufacture.
- (b) Lead exposure in the manufacture of foundry bronze, lead foils, paint, toys; reclaiming scrap and in mine assay offices which now appear as one of the more important sources of hazard from this metal.
- (c) Benzol exposure in the manufacture of rubber shoes, patent leather, rubber cement and lacquers.
- (d) Carbon tetrachloride and trichlorethylene exposures in degreasing and dry-cleaning.
- (e) A variety of exposures producing cases of dermatitis, such as from chromium in tanneries where there appears no doubt that reduced chromium as the sulphate can produce severe dermatitis; from adhesive paste, exotic woods, morphine and cutting oils.
- (f) Miscellaneous inquiries such as arsenic in insecticides, weed killer, and button manufacture; asphalt fumes, hydrogen sulphide in sewers, steel alloys in welding, and explosion from baking oven enamels.

More detailed inquiry has been made respecting the use of carbon tetrachloride by furriers for cleaning; of ethyl mercury phosphate (cerasan) as a disinfectant for seed grain; of chlorinated phenol as wood preservative; of a spray gun for the application of molten lead in automobile body repair; of radioactive compounds for dial painting, of carbon tetrachloride in degreasing machines designed for trichlorethylene.

The factory inspectors of the Department of Labour and of the Accident Prevention Associations are in an increasingly better position to deal with the ordinary health hazards which arise, referring to the Division only those which require technical assistance to determine how extensive the changes for correction should be. To keep the laboratory and clinical investigations within limits, the services of one physician working with these inspectors, are largely given over to the evaluation of suspected hazards, requiring considerable experience if the results are to be at all satisfactory. In the course of this work, two hundred visits were made and twenty-two companies were required under the Factory, Shop and Office Building Act to provide and report to the Division the results of periodic physical examination of workmen exposed to dangerous materials. This involved about fourteen hundred examinations by company physicians, six hundred and forty-seven in lead, one hundred and thirty in arsenic and lead, two hundred and fifty-six in benzol and three hundred and eighty-four in radium. As a result of this supervision no case of serious poisoning has developed in these exposures.

To carry out the special inquiries, the Industrial Hygiene Laboratory has conducted about five hundred chemical determinations in relation to three hundred exposures. This aspect of the work has been restricted to some extent by the chemical facilities needed for the enforcement of the bedding regulations. On the other hand, some local branch factories of American companies have conducted their own inquiry into dust exposures and the best means for their control. About one thousand blood smear examinations have been made to assist in the diagnosis of suspected cases of occupational disease or in the supervision of those exposed. There have been three hundred examinations in factory clinics, four hundred in connection with claims for workmen's compensation for silicosis and a few examinations each in those exposed to benzol, lead, cyanide and radium. In addition, the clinician has issued one hundred

and seventy-two certificates for fitness for employment in mines and examined or assisted with others on various Department Boards in nearly eight hundred cases. Chest-X-Ray films of workmen exposed to dust have been referred by many local physicians and from the Provinces of Manitoba, Alberta, Quebec and Nova Scotia and from Newfoundland.

Incidental to the effort to determine the occupational factor is some cases, arise unsuspected conditions. A case of lead poisoning with paralysis developed from ingestion of a cocktail after it had remained in the cocktail shaker for six days. Apparently, it is still important that possible exposure to lead be considered in the differential diagnosis of appendicitis.

Dust Control

The engineering control of dust hazards is facilitated by the provisions in the Factory Act, requiring submission of plans for new factories or for extensions to existing ones. Co-operation with the Department of Labour results in consideration of structural and equipment needs before expenditures are made, in many instances with considerable saving to employers. Dust determinations have been limited to those processes where the degree of exposure was doubtful or for testing the effectiveness of new control equipment. A number of factories have been supplied with detailed plans prepared in the Division for the correction of known hazards, for example, in ore-smelting, aeroplane coating, abrasive manufacture, ore-loading, porcelain enamelling. Special attention continues to be directed to the control of dust in the foundry industry where this year in twenty-five plants detailed recommendations have been made. Employers in this industry have effected very definite improvements and as an organization are still active in this direction. By request, comments have been prepared and forwarded on the proposed codes developed and submitted by the Codes Committee of the American Foundrymen's Association.

One physicist of the Division has been largely engaged for some months upon physical problems in connection with radium for cancer therapy.

The following articles have been prepared and delivered or published during the year.:

"Ontario Gold Mining" and "The Importance of the Clinical Picture in the Diagnosis of Silicosis," presented by Dr. A. R. Riddell, at the Symposium on Silicosis at Saranac Lake, New York.

"Tuberculosis as an Occupational and Compensable Disease from the Standpoint of the Community," presented by Dr. J. G. Cunningham, at the American Hospital Association Meeting, Toronto.

"Industrial Diseases," at the Toronto Chemical Association Meeting, Toronto, by Dr. J. G. Cunningham.

"Silicosis in Industries Other Than Mining," by Dr. J. G. Cunningham, at meeting of Industrial Hygiene Advisory Committee, Federal Department of Health, Ottawa.

"Industrial Hygiene Work in Ontario," by Dr. J. G. Cunningham, published in the Canadian Public Health Association Journal, November, 1939.

"Cutting Oils and Skin Disease," by Dr. F. M. R. Bulmer, at the Convention of the Industrial Accident Prevention Associations, Toronto.

"Industrial Medical Service," by Dr. F. M. R. Bulmer, at the meeting of the Industrial Accident Prevention Association, London District.

"Ventilation," by Dr. F. M. R. Bulmer, given at the Guelph Agricultural College, Guelph, and also at a Convention of Undertakers, Toronto.

"The Nurse in Industry," presented by Dr. F. M. R. Bulmer, at the District Meeting of Nurses, Simcoe.

"The Urinary Sulphate Test in the Supervision of Workers exposed to Benzine," by C. M. Jephcott and F. M. R. Bulmer, published in the Journal of Industrial Hygiene and Toxicology, April, 1939.

Talks on Radium and X-Rays, by Dr. L. B. Leppard.

Enforcement of Bedding Regulations.

On December 28, 1938, bedding regulations made under The Public Health Act came into force. These regulations among other things require the labelling of bedding and certain types of furniture at the time of manufacture, repair or in the case of second-hand articles, before they are exposed for sale.

Three types of labels are used: "Contains new material only," on a white label for articles containing all new material; "Contains converted material," on a blue label for articles containing in whole or part any otherwise new material which has been dyed or colored but no further manufactured than to be spun into yarn or woven into fabric; and "Contains second-hand material," on a yellow label for articles which have been previously used or contain materials that are second-hand.

It is not the intention of the regulations to grade materials according to utility, durability or price but to protect the consumer from the inclusion of second-hand materials in new articles where inspection without defacement is not readily possible.

The regulations contain adequate provision for dealing with these materials, disposed of following their use in cases of communicable disease or from institutions for the care of the sick or where any unclean or vermin-infested material is involved.

Experience shows that the amount of second-hand materials used in the manufacture of bedding is greatly reduced where bedding laws are adequately enforced and that those jurisdictions having no such laws become the dumping ground for second-hand material.

The detection of second-hand material is not easy and requires in many cases extensive laboratory investigation. No bedding law can be properly enforced without special laboratory facilities. The final grading of all materials is a laboratory procedure, expert opinion being of little value for this purpose in most cases. During 1939, seven hundred and six inspections under the regulations were made. Labels were approved for three hundred and sixteen companies, most of which are located in Ontario or Quebec with some in the United States and England. In the laboratory, two hundred and twenty-six samples of bedding material were subjected to one thousand fourteen hundred and seventy-two tests. In the course of inspection one hundred and seventy-four articles in twenty-nine different establishments were placed "off sale." One renovator and three manufacturers were prosecuted during the year. Three manufacturers were convicted of mislabelling, having used a "new" label on articles containing second-hand material. The renovator was given a suspended sentence for failure to use labels on repaired articles.

The question of revenue for purposes of enforcement, from stamps to be affixed by the manufacturer to the article coming under the regulations, has been thoroughly canvassed. Although supported by the trade, difficulties have arisen in respect to the application of such a measure.

Mr. William L. Smith, bedding inspector, enforcing the regulations enlisted for war service, November 2, and is now overseas. In the meantime, Mr. John Sydney Pye has been appointed to carry on this work.

Fumigation with Cyanide Compounds.

Under the regulations respecting the use of cyanide compounds for fumigation there were issued by the Department, twenty-two household licenses and twenty-three commercial licenses. Of these, one household and three commercial licenses were issued to new applicants.

Five prosecutions for infractions of the regulations were laid and sustained in court for using cyanide for fumigation purposes without a suitable warning gas, for failure to obtain a permit from the local Medical Officers of Health and for failure to use warning signs and guards on the premises to be fumigated. One license was suspended and later cancelled.

Unfortunately, there must be recorded this year, two deaths from the use of these compounds, both in the same house at the same time. The verdict attached no blame for these fatalities to the fumigator.

There have been no new developments to indicate that there are less dangerous substances which could be used to replace cyanide with equal satisfaction. Under provision in the regulations the use of cyanide in low concentrations for disinfestation of greenhouses has been exempted from the requirements respecting license, warning gas and insurance but otherwise is subject to the regulations.

Sanitary Inspection and Medical Care in Unorganized Territory.

The provision of medical services under the regulations respecting camps, works and premises in unorganized territory are the subject of frequent consideration to meet changing conditions in Northern Ontario. Workmen appear to appreciate the arrangement whereby they may provide for sickness and non-industrial accident by a deduction from wages. Employers to an increasing extent are taking an active interest in their ultimate responsibility for medical and surgical care but it is unreasonable to suppose that the difficulties which can arise in connection with the contract medical practice are absent.

The potential liability of both employer and physician for these services in camps with a small number of men is very considerable, although the aggregate of reported sickness in this selected group of the population taken over the country as a whole is not high. The same applies to the total amount of money collected which is at least \$300,000 a year but the amount from the men in any one small camp is negligible compared with the risk, for the size of the fund collected. Any method of spreading the cost involves considerable administrative machinery. Contract practice presupposes that the workmen will use the services of the contract physician and when he presents himself directly for treatment elsewhere, the contract physician has no control over the expense incurred, which may be out of all proportion to his revenue.

The arrangement whereby the physician is entirely responsible for hospitalization is not satisfactory and this with some provision for limiting the employer's responsibility where the employee requires care when he is not accessible to the contract physician, are the subject of consideration with the industries concerned at the present time.

Report of the Chief Sanitary Inspector.

This report covers the activities of the six Provincial Sanitary Inspectors responsible for the observance of *The Public Health Act* and regulations made thereunder, particularly the regulations in relation to industrial camps, also the territorial districts without municipal organization.

The work in the Kenora and Geraldton districts has been greatly curtailed owing to the enlistment for military service of two of the inspectors. Capt. A. S. O'Hara, Kenora, is serving with No. 5 Canadian Army General Hospital, Winnipeg, and Staff-Sergeant S. Harris, Geraldton, is in England with the 2nd Field Hygiene Section, First Division, C. E. F. Inspector O'Hara was also on leave of absence from April 15 to June 15, owing to ill-health. Temporary appointments to fill these vacancies were made on November 15th. Mr. D. E. Moore was transferred from the Division of Tuberculosis Prevention to replace Mr. O'Hara in the Kenora District, and Mr. George Powell was appointed to replace Mr. Harris in the Geraldton district. Until the temporary appointments of the two new inspectors were made only urgent matters such as complaints or contagious diseases were investigated and dealt with by the inspectors of the adjoining districts, or through the central office in Toronto.

Three new fields of work were taken over by the staff of inspectors during the past year, namely, investigation under the Bedding Regulations, Fire Prevention under the Fire Marshal's Act, and home investigations of tuberculosis convalescent patients.

Bedding Regulations.

Pursuant to Section 5, clause (zd) of The Public Health Act, the inspectors made 127 investigations in retail stores relative to the proper labelling of articles offered for sale. At the same time, the inspectors carried out an educational campaign relative to these regulations. There was some little difficulty at first by some of the retail merchants in obtaining the necessary information from the manufacturer regarding the grade or quality of stock on hand, particularly where the manufacturer had gone out of business. From the follow-up work carried out to date, it would appear that the retail merchants have welcomed this new legislation and are co-operating to the fullest extent with the inspectors in this work.

Fire Prevention.

In January of this year, the Chief Magistrate of the District of Cochrane, Mr. E. R. Tucker, requested that the Provincial Sanitary Inspectors in Northern Ontario be appointed as assistants to the Fire Marshal, with authority to carry out the Act. With the approval of the Honourable the Minister of Health this authority was granted to all district inspectors within their judicial districts by the Department of Health regulations. This arrangement gave the inspectors authority to make provision where necessary for fire escapes, particularly where two-story buildings are used in mining or other camps, boarding-houses, hotels, etc. This work is carried out at the same time that the inspectors are making other investigations.

Investigations re Convalescent Tuberculosis Patients' Home Conditions.

In co-operation with Dr. G. C. Brink, Director, Division of Tuberculosis Prevention, the inspectors made ten home investigations preliminary to the discharge of convalescent patients from sanatorium to their homes located in unorganized territory, at the same time arranging for necessary assistance when required under The Tuberculosis Prevention Act.

Industrial Camps.

The following statement shows the number of camps and the average number of workmen employed in each industry operating in the unorganized districts during the past year. These figures are prepared from the monthly reports of the industrial contract physicians.

INDUSTRY	No. Operations	No. Camps	No. Men Employed	Average Duration
Lumber and Pulpwood.....	131	339	22,947	6 mos.
Saw Mills.....	18	18	1,141	5 mos.
Mining.....	72	75	9,813	12 mos.
Construction.....	33	59	4,794	6 mos.
R. R. Extra Gangs and B. B. Camps.....	8	9	530	5 mos.
Creosoting.....	1	1	50	
	263	501	39,275	

During 1939, 1113 more workmen were employed than in the previous year, although the number of camps in operation during 1939 was considerably less. This may be accounted for by the number of new and larger camps which were constructed during the last half of the year to meet the increased demand for pulpwood, particularly in the Thunder Bay District.

Saw-Mill Camps.

There were 18 saw-mill camps operating for an average of five months which gave employment to 1148 workmen during the summer months, all located in unorganized territory.

Mining Camps.

There were 72 mining camps operating during the year under the regulations as against 84 in 1938. In the 72 mining camps there were 9,813 workmen employed for one year. This is an increase of 276 workmen employed in the industry over the previous year. More extensive production and milling operations in the larger mines have more than absorbed the number of workmen laid off by the shutting down of the 12 small camps.

Construction Camps.

During the year there were 33 construction operations. This included 59 camps and gave employment to 4,794 workmen for an average of six months on highway construction, bridge building and hydro-line construction camps. These types of camps are frequently of short duration in any one particular camp site, and to a great extent operate only during the summer months. Under these circumstances, the inspectors are required to render close sanitary supervision to avoid the possibility of typhoid fever or dysentery among this group of workmen from such conditions as contaminated drinking water and food supplies, etc.

Employers of labour and the contract physicians have been in close contact with the District Sanitary Inspectors and have given full co-operation in regard to the observance of the revised regulations. Most of the employers realize it is to their interest and that of the industry to provide for the comfort and welfare of their workmen. Many of the employers have adopted a system of medical examination of the workmen before and after employment. From the reports received from the contract physicians, it is evident that 7,989 such medical examinations were made during the year. More consideration is now being given to the placement and adjustment of the workmen and to the type of work to which they are more adapted.

Industrial Contract Physicians.

There were 196 active medical contracts on file during the year. The contracts are divided between 102 contract physicians who employ 24 full time assistant physicians and 8 part-time assistants. In all, a total of 134 physicians were engaged in this work full or part time throughout the year. As reported by the contract physicians monthly the following medical service was rendered to the workmen under the medical contracts.

No. Men Treated	Physical Examinations	Immunizations	Camp Inspection Reports Received
18,357	7,989	1,789	2,450

For the year 1939, there was an increase of over one hundred per cent. in the number of physical examinations reported compared with that of last year.

Two meetings were held in North Bay and Port Arthur in conjunction with the District Medical Association meetings in order that all industrial contract physicians might have the opportunity of discussing their medical problems under the regulations with Dr. J. C. Cunningham, Director of the Division of Industrial Hygiene. The meeting in North Bay, on August 30th, included the Districts of Nipissing, Temiskaming, Cochrane, Sudbury and Algoma; the one in Port Arthur on September 1st, the Districts of Thunder Bay, Kenora, Patricia and Rainy River. On September 2nd in Port Arthur, Dr Cunningham attended a meeting of the lumber operators in the Thunder Bay District in regard to the medical service under the regulations.

Communicable Diseases.

The record of communicable diseases reported shows a slight increase over the previous year. The following statistics are compiled from the industrial physicians' monthly reports.

Measles.....	4	Septic Sore Throat.....	5
Tuberculosis.....	5	Diarrhoea.....	495
Chickenpox.....	5	Gonorrhoea.....	12
Pneumonia.....	28	Conjunctivitis.....	45
Impetigo.....	17	Mumps.....	1
Syphilis.....	2	Typhoid Fever.....	5
Influenza.....	1887	Herpes Zoster.....	2
Scarlet Fever.....	2	Scabies.....	33
Dysentery.....	98	Meningitis.....	2

It will be noted from the above that five cases of typhoid fever were reported during the year. Of these, three cases developed at a highway construction camp in the vicinity of Temagami; the other two cases developed in one of the lumber camps in the area of Hearst. Two cases of meningitis were reported, one from a highway camp in the Temagami area and one from a lumber camp in the township of Afton. Immediately these cases were reported prompt action was taken by the District Inspector who enforced strict quarantine of all contacts. Influenza was more or less epidemic during the first three months of the year, particularly in the camps located in the north-west end of the province. The frequency of dysentery and diarrhoea in many of the camps has been closely investigated by the inspectors and contract physicians and in most instances the illness was of very short duration.

During the year 168 cases of communicable diseases were reported by the local physicians from the unorganized district. In each instance the inspectors had been called upon by the family physician to assist in regard to isolation and quarantine of patients and contacts under the communicable disease regulations.

Sanitary Surveys.

It has been noted from the inspectors' reports that they have been asked to assist the local Boards of Health with respect to milk and water in vestigations and other sanitary problems in these municipalities. During the summer months routine sanitary inspections have been carried out with very satisfactory results in unorganized towns, villages and communities without municipal organization. These sanitary surveys included schools, tourist camps, hotels, etc. To adequately take care of the unorganized towns and villages with a population of over five hundred persons, it has been recommended by the inspectors that further consideration be given to some provision in *The Public Health Act* for the election or appointment of Sanitary Area Boards who would have authority under the Act to assess and collect money for local sanitary improvements. This authority might be granted along similar lines as for the election of school boards.

CANCER CONTROL

The Government, in addition to supplying radium to the seven cancer clinics, pays eighty-six thousand dollars a year in grants to these clinics to assist in the provision of the most effective means for the treatment of cancer, in order that all who are afflicted may receive treatment apart entirely from their financial resources. The staff and equipment for these clinics are of a high order. The detailed arrangements for recording data upon twenty-one hundred new cases reaching the clinics each year, have been completed. The summary of the first year's experience with these records has been prepared and distributed by Dr. A. H. Sellers, Medical Statistician.

This summary emphasizes again how many patients fail to apply for treatment in the early stages of the disease. The clinics should serve as centres upon which the attention of the public might be focussed in the educational effort to correct this situation. Close association should exist between the cancer committee in the clinic centre and those in the other municipalities of the district.

The Department has arranged that the Directors of the clinics meet in Toronto periodically for the consideration of mutual administrative problems.

A meeting for discussion of technical procedures is scheduled for June, 1940.

The Department retains affiliation with the British Empire Cancer Campaign and thereby receives its very valuable biennial report of the meeting of experts called to consider the various medical aspects of the subject. The annual report of the British Empire Cancer Campaign covers only reports of research work from the various units affiliated. It is hoped that there will be opportunity for more research in the clinics as treatment progresses.

Distribution of Radium.

Sixty-five mgms. of new radium were purchased during the year and fifteen mgms. of old radium refilled into new containers. This transaction involved additions to, or changes in the radium stock at two of the Government Cancer Clinics—at Ottawa General Hospital and at the Metropolitan Hospital, Windsor, supervised by the physicists of the Industrial Hygiene Division.

- (a) *Ottawa General Hospital*:—Five one-milligram radium needles previously held at the Metropolitan Hospital, Windsor, were transferred to the Ottawa General Hospital and in addition six new ten-milligram radium tubes were purchased. This raises the total in use at the

Ottawa General Hospital Clinic from 100 to 165 mgms., a figure which in relation to the number of cases treated, is approximately equivalent to the average for the other clinics. The six ten-mgm. tubes were required to permit economic treatment of lip and cervix cases.

- (b) *Metropolitan Hospital, Windsor*:—Of twenty one-milligram radium needles previously held at this hospital, five were transferred as noted above, to the Ottawa General Hospital; the other fifteen were converted with an additional five mgm. of new radium into two ten-mgm. radium tubes. In the techniques developed at the Metropolitan Hospital relatively little use has been found for one-mgm. containers, so that change will definitely increase the usefulness of the radium. The total radium stock at this hospital remains unchanged at 250 mgm.

Distribution of Radium Emanation.

Table I gives the total amount of radium emanation distributed to the seven Ontario Cancer Clinics and to private doctors and hospitals other than Government centres during 1939. The emanation is supplied without charge to the Government clinics for which the service is primarily intended. It is also furnished, so far as the supply permits, to a limited number of qualified private doctors, for use on private pay patients, at the rate of \$1 per millicurie, and to a few large hospitals (other than Government clinics). for use on indigent ward patients, free of charge.

Table II presents a comparison of the amounts of radium emanation supplied in the four years, 1936-1939. The total production is up about four per cent. over 1938, and approximately the same as in 1936 and 1937.

TABLE I
EMANATION SUPPLIED 1939

RECIPIENT	Millicuries	Per Cent. of Total	Revenue
General Hospital, Toronto.....	3862	52.1	Free
General Hospital, London	586	7.9	Free
General Hospital, Kingston	304	4.1	Free
General Hospital, Hamilton.....	286	3.9	Free
Civic Hospital, Ottawa.....	696	9.4	Free
General Hospital, Ottawa.....	10	0.1	Free
Metropolitan Hospital, Windsor.....	597	8.1	Free
Private doctors, etc.....	1070	14.4	\$750
	7411	100.0%	\$750

TABLE II

Year	Total Emanation Supplied	Emanation Supplied to Clinics		Private Doctors		Revenue From Private Doctors	
		Mcs.	% of Total	Mcs.	% Total	Total Revenue	Revenue Per M. C.
1936	7463	5938	77.3	1525	22.7	\$569	\$0.37
1937	7459	6083	81.5	1376	18.5	604	0.44
1938	7111	5966	83.9	1145	16.1	555	0.48
1939	7411	6341	85.6	1070	14.4	750	0.70

The emanation plant technician, Mr. A. W. Love, a post-graduate in physics has been appointed to this (non-permanent) post in succession to Dr. L. T. Newman.

Radium and X-Rays.

The cancer clinics were visited during the year for the purpose of calibrating the output of X-Ray therapy machines, and of auditing the stocks of Government-owned radium. Several of the clinic directors expressed the desire that this service be given more frequently.

Several months have been spent by Dr. E. O. Braaten in designing and building special equipment for the clinic at the Toronto General Hospital. This included a presswood phantom and various "thimble chambers" to be used in conjunction with a Victoreen electrometer for the measurement of relative depth doses in the radiation fields of both X-Ray machines and the radium bomb. Experiments have also been carried on with a view to reconstructing the 4-gm. radium bomb in such a manner as greatly to reduce the skin dose administered in delivering a given dose at depth. This will greatly enhance the utility of the bomb in which the Ontario Government has an investment of approximately \$200,000.

Lost Radium.

Three cases of lost radium were reported to the Department during the year, involving respectively 50 mgm., 10 mgm., and 10 mgm. of radium. The radium was in each case located and recovered by officials of the Department using the Geiger-Mueller Detector, built some years ago. This instrument has ably justified its small initial cost, both in its successful recovery of lost radium and in the saving it has permitted the Government to effect by dropping insurance on Government-owned radium. It is, however, desirable that a more portable and more sensitive instrument be constructed to supplant the present detector. Only 10 mgm of the lost radium belonged to the Government.

The report of the medical statistician on Cancer follows on page 191.

THE FOURTH ANNUAL STATISTICAL REPORT ON CANCER*

CALENDAR YEAR 1939

This report—the fourth annual statistical report on cancer—includes a review of important developments during the calendar year 1939, a discussion of the highlights of the cancer mortality picture, and brief references to the noteworthy statistical studies during the period. An analysis of the work of the Cancer Centres during 1939, and some information on previous treatment and duration of symptoms together comprise the major part of this report.

CANCER CLINIC STATISTICS

The new case-recording plan in effect in the seven Ontario Cancer Centres, discussed at some length in earlier reports, has proven eminently satisfactory. Certain difficulties in recording have persisted but those may be expected to be eliminated since they concern largely modifications in practice and adjustments in follow-up machinery. Arrangements provide for the temporary transfer of the follow-up cards of all *new* patients admitted to the clinics since January 1st, 1938, to the Department during February of *each* year. This machinery makes possible a review of the cards to assure their completeness in the form required, having clearly in mind the chief ultimate objectives which call for a study of such elements in cancer control as: nature of symptoms and their duration, delay in diagnosis and treatment, nature of previous treatment (especially in recurrent cases), stage of disease when treatment is begun and results of treatment. The plan also allows an annual central compilation of information on all new cases admitted to the Centres and facilitates the making of suggestions re future case records. Since the cards submitted cover *preceding* years as well as the calendar year just preceding, an assessment of treatment experience and the completeness of follow-up can be made.

In 1939, a general review of all new cases admitted to the Centres during 1938 was undertaken by the Division of Medical Statistics. Data on age, sex, site of disease, place of residence, histological diagnosis, stage of disease, method of treatment, recurrent cases, untreated cases, etc., were included as well as statistics on stages in cases admitted during the years 1934-1938. The findings of this study were embodied in a forty-page Cancer Review which has proven to be valuable not only to the Centres themselves and to those actively interested in therapy, but also to those responsible for educational efforts in the cancer field. The highlights were incorporated in the Third Annual Statistical Report on Cancer (1938).

While the Cancer Review for 1938 did not include any reference to duration of symptoms, nature of previous treatment and other ancillary facts, the necessary information is available for study. Such annual reviews on cancer will be issued at intervals, detailed analysis of survival following treatment being deferred at least until 1942, at which time some preliminary figures on three-year survival rates can be expected.

The history and examination forms introduced into the seven Cancer Centres in 1937 were reviewed late in 1938 in order to consider their adaptation to clinic needs. A revision was completed during 1939 and in addition special

*Prepared by the Division of Medical Statistics, Ontario Department of Health.

forms were devised for gastro-intestinal cases (exclusive of oesophagus and rectum). The new schedules have proven superior to the old from the clinical standpoint. With revision of these schedules a new Memorandum on Recording was issued in March, 1939, incorporating important new features for those responsible for clinic records and covering all details pertinent to procedure in clinical recording and follow-up.

CANCER MORBIDITY STUDIES

During 1938 a study of all cancer cases treated in Ontario public general hospitals during 1937, was initiated by the Division of Medical Statistics. Transcription of the information from the monthly returns submitted by each hospital to the Department's Division of Hospitals has been completed and 12,000 records are now ready for tabulation. Patients with cancer and benign tumours as well as certain non-neoplastic conditions are included. Age, sex, residence, diagnosis, length of stay and "type" of patient are recorded for each case. Preparations have been made for analysis of these data, and it is expected that a report thereon may become available during 1940.

While the importance of cancer as a cause of hospitalization is generally appreciated, a *measure* of the actual scope of the problem in terms of hospital days and cases has only recently become available—through a morbidity survey undertaken by the Division of Medical Statistics in the Department and covering all discharges and deaths for a three-month period. Limited though this survey is in point of time covered, even the brief extracts from the findings of this work given on pages 54 to 56 of this Report indicate that cancer is an important cause of hospitalization. Excluding pregnancy and childbearing it ranks third only to appendicitis and accidental injuries in both cases and days of care—being responsible for 5.1 per cent. of *all* days of care among patients discharged or dying during the period.

One of the greatest present needs in the field of cancer control—be it in the realm of education, in any discussion of facilities required or in ascertaining the precise scope of the problem—is a reasonably accurate picture of the incidence and prevalence of cancer in any community. Mortality data, while of definite value, have many limitations and the present need could never be met by such information in any case.

Many estimates of the number of persons alive with cancer and needing treatment at any one time, are on record. These vary from 1.5 to 4 cases per death. By reason of great variations in case fatality among the various sites, however, the distribution of deaths bears no relationship to *cases* and no reasonably accurate conception of the frequency of cases by site can be deduced from mortality figures. Variable factors such as certification, extent to which cases are effectively treated, etc., make this clear.

In the first statistical report on cancer (1936), a very crude effort was made at estimating the number of cases. While it was concluded then that there were *at least three cases alive at some stage of the disease and needing treatment during any one year*, for every two recorded deaths, the data employed were not such as to justify much confidence. Estimates made from deaths are no longer accurate unless correction is made for "cures." This, however, cannot be done accurately because we do not know the number of patients to whom curability rates should be applied.

The Middlesex County Cancer Survey.

Attention has been drawn in earlier reports to a realization of the need for information as to the number of patients who are alive with cancer during a given period (prevalence) and also the number of new cases diagnosed each year

FIGURE I.

CANCER CASE SURVEY — MIDDLESEX COUNTY — 1939

ALL CANCER CASES (including probable Cancer) — SEEN, OBSERVED OR TREATED AT ANY TIME FROM JANUARY 1st TO DECEMBER 31st, 1939

ALL INFORMATION IS CONFIDENTIAL AND WILL BE USED FOR STATISTICAL PURPOSES ONLY.

NAME OF PATIENT		RESIDENCE Not P.O. Address Give city, town, village or township	SEX	AGE on Jan. 1st 1939	S. M. W. D.	Date First Seen with Cancer		SITE OF CANCER		Date Last Treated For Cancer (State if not treated)		Date Last Seen (Include cases still followed up but no longer treated)		Condition When Last Seen		Alive Jan. 1st 1940	Micro- scopic Diag- nosis	Type of Cancer
To be used only for checking of duplicate cases	Given Names					Primary Site (If a skin case, state "Skin of ")	Other Sites Involved (even if treated by surgery X-ray or radium)	Mo.	Yr.	Mo.	Yr.	Mo.	Yr.	Mo.	Yr.				Free from Cancer	Alive with Cancer
Sample: McCarthy	Charles, Mrs. (Mary)	London	F	39	M	Feb.	37	Breast	Axillary	None	Nov.	37	Oct.	39	✓	Yes	Yes	Adenocarcinoma
1																		
2																		
3																		
4																		
5																		
6																		
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16																		
17																		
18																		

EXPLANATORY NOTES

1. Report every case even though the patient is now dead, is receiving treatment elsewhere or is in hospital.
2. Report every case even though only referred for consultation, diagnosis or follow-up.
3. Report every case which you saw or treated prior to 1939 but which reported to you or was seen by you during 1939.
4. If you have seen no cancer case for diagnosis, treatment or follow-up during 1939, write NO CASE across the form and return it to the Ontario Medical Association in the envelope provided.

Signature..... M.D.

Address.....

(incidence). After consideration of the problem extending over a period of two years, it was decided to undertake a case survey. The guiding principles laid down as the basis of the survey were:

1. The survey should begin by covering a relatively small portion of the province so that difficulties not at first appreciated could be ascertained before the survey was extended.
2. The area in which the survey was initiated should be one in which the population structure was fairly representative in respect to urban and rural sections, various economic strata, etc.
3. Since work in the course of the National Health Survey (U.S.A.), 1935-36, has shown that data on cancer incidence and prevalence derived from house-to-house canvasses could not be depended upon, it was clear that the survey should be limited to known or diagnosed (clinically or otherwise) cases of cancer and that the survey should be conducted with the co-operation of and entirely through the medical profession and the hospitals in the area surveyed.
4. Since the number of known cases in relation to deaths depended upon the extent and quality of medical and hospital facilities in the areas surveyed, it was essential that the area selected should be one on which these were both of a high standard and accessible to all the population surveyed.
5. There was no point in including precancerous conditions in the survey.
6. Having in mind the importance of simplifying the procedure as much as possible, the survey should be retroactive and cover a period of one calendar year. Items required regarding each case reported upon should be limited to essentials—name, address, age, sex, date, diagnosis, site and extent of disease, type of cancer and date and condition when last seen.

With these principles in mind, the County of Middlesex was selected. Here the population is representative, with satisfactory population structure and adequate hospital facilities, medical care of a high order and a centrally located Cancer Institute, all readily accessible to all persons.

The Department sought and obtained the co-operation of the Cancer Committee of the Ontario Medical Association and arrangements were concluded whereby the survey was to be conducted jointly. Co-operation of the two local medical societies in the area was secured and a schedule prepared by the Division of Medical Statistics (Figure I). This schedule provides identifying data and information on site and extent of disease, confirmation of diagnosis by biopsy, type of cancer, date of diagnosis and condition of patient at last contact.

The approach to the profession and the hospitals was made on December 29th, by the Cancer Committee of the Ontario Medical Association and all returns are to be made to them. Analysis of the returns will be undertaken by the Division of Medical Statistics of the Department. All defective returns or returns not made will be followed up so that the coverage will be fairly complete.

Reports are being sought on all patients with cancer (or probable cancer) seen, observed, or treated in private practice, hospital or clinic during the calendar year, 1939. While of necessity such a survey is limited to known or diagnosed cases, this is not a serious restriction since practically nothing is known as yet concerning cancer incidence and to include other cases (suspected cancer, pre-cancer, etc.), would be undesirable for many obvious reasons.

This survey may be extended to other areas of the province should the findings be such as to encourage such a step. This is the first survey of its kind in Canada and it is to be regarded as a fair effort to extend our present limited knowledge of the incidence and prevalence of cancer in the community.

CANCER MORTALITY

Cancer, as a cause of death, has received considerable attention. This attention has been focussed on the *volume* of deaths, data on which for the past 20 years are given in Table A.

TABLE A
RECORDED CANCER MORTALITY
ONTARIO, 1919-1938

YEAR	Total Deaths All Causes	Cancer Deaths	Per Cent. of Total Deaths	Crude Death Rate
1919	34,010	2,182	6.4	76.5
1920	40,440	2,464	6.1	85.2
1921	34,551	2,585	7.5	88.1
1922	34,034	2,609	7.7	87.5
1923	35,636	2,724	7.6	89.9
1924	33,078	2,946	8.9	96.2
1925	33,960	2,951	8.7	95.1
1926	35,909	3,116	8.7	99.0
1927	34,775	3,177	9.1	99.7
1928	37,128	3,441	9.3	106.8
1929	38,123	3,402	8.9	104.0
1930	37,313	3,635	9.7	109.7
1931	35,705	3,726	10.4	108.6
1932	36,436	3,825	10.5	110.1
1933	35,301	4,044	11.5	114.7
1934	35,105	4,034	11.5	113.2
1935	36,317	4,214	11.6	117.1
1936	37,571	4,441	11.3	120.4
1937	38,475	4,527	11.8	122.0
1938	36,890	4,472	12.1	119.9

A slight reduction in the total recorded cancer mortality occurred in 1938. However, these data illustrate *merely* the persistent increase in *total deaths attributed to cancer*. This may be far from the truth—but the facts are that limited though these data are, the volume of deaths is evidently substantial.

Site of Disease—Variation in organ incidence is important in any interpretation of the problem as it exists and in relation to what control can be exercised with available facilities. A five-year distribution of the *recorded* cancer deaths by site and sex is given in Table B.

TABLE B
CANCER DEATHS BY SEX AND SITE
ONTARIO, 1934-1938

SITE	MALES		FEMALES		BOTH SEXES	
	Deaths	Per Cent. Of Total	Deaths	Per Cent. Of Total	Deaths	Per Cent. Of Total
Stomach and Duodenum.....	2,644	26.1	1,623	14.0	4,267	19.7
Other Digestive Tract	3,224	31.8	3,515	30.4	6,739	31.0
Genital Organs.....	1,179	11.6	2,436	21.1	3,615	16.7
Breast.....	26	0.3	2,284	19.8	2,310	10.6
Buccal Cavity	644	6.3	149	1.3	793	3.7
Urinary Organs.....	732	7.2	352	3.0	1,084	5.0
Respiratory Organs.....	566	5.6	268	2.3	834	3.8
Skin.....	271	2.7	171	1.5	442	2.0
Other or Unspecified Sites	857	8.4	767	6.6	1,624	7.5
ALL SITES.....	10,143	100.0	11,565	100.0	21,708	100.0

More than half of all deaths attributed to cancer are those of the digestive tract and peritoneum (including oesophagus, stomach and duodenum, rectum, liver and pancreas, etc.,) The influence of sex on site predilection in cancer deserves emphasis. In Ontario, breast cancer ranks first in numerical importance among women while in males cancer of the stomach stands first. The ratios of male to female mortality present the principal variations.

Cancer cases which are particularly amenable to treatment with reasonable chance of cure, namely, cancer of the female genital organs, breast, buccal cavity, and skin, constitute about 28 per cent. of all deaths classed to cancer. It is especially noteworthy that this group contributed 43.7 per cent. of female cancer deaths in 1934-38. Upon these cases our interest and attention must be focussed, because it is for these sites particularly that success, in early cases especially, has been achieved with recognized methods of treatment.

Cancer as a Cause of Death at Selected Ages—Of interest in interpreting the problem is the relative importance of cancer as a cause of death at ages (Table C)

TABLE C
CANCER AS A CAUSE OF DEATH BY AGE
ONTARIO, 1938

AGE GROUP	Cancer Deaths	Per Cent. of All Deaths	Rank as a Cause of Death	Specific* Death Rate	Per Cent. of Cancer Deaths
0-19	44	0.9	.....	3	1.0
20-49	667	12.1	Fourth	41	14.9
50-59	845	19.5	Second	247	18.9
60-69	1,181	18.3	Second	528	26.4
70 and Over	1,735	11.3	Third	1,128	38.8
ALL AGES	4,472	12.1†	Second	119.9	100.0

*Per 100,000 population.
†Total deaths in 1938 were 36,890.

Cancer does not become an important factor in mortality until after the age of twenty years. At ages 20-49 years cancer is exceeded in importance *only* by deaths from “external causes,” tuberculosis and diseases of the heart. The bulk of cancer deaths occurs at ages 50 and over (84.1 per cent.). At ages 50-69 years almost one death in every five is a death from cancer, only heart disease exceeding it. The specific death rates increase markedly with increasing age. At ages 50-59 years the mortality rate for cancer is only half what it is at ages 60-69 years and the rate in the latter period is just half the rate for ages 70 and over. It is a pertinent fact, however, that 34.8 per cent. of the recorded cancer deaths in Ontario during 1938 were among persons under the age of 60 years and 15.9 per cent. among those under 50 years of age.

The specific death rate from cancer rises precipitately with increasing age as was pointed out in the second annual statistical report on cancer (1937—page 160). Nevertheless, sight must not be lost of the fact that the risk is significant at ages under 60 and even under 50 years.

Deaths from Cancer of Accessible Sites at Ages under 70 Years.

Particular concern is attached to deaths attributed to cancer at ages under 70 years, especially those of accessible sites—for which group measures offering substantial hope are now available. Table D gives some data on this group.

TABLE D
"ACCESSIBLE" CANCER MORTALITY AT AGES UNDER 70
ONTARIO, 1938

SITE	MALES		FEMALES	
	Deaths	Per Cent.	Deaths	Per Cent.
Oral Cavity.....	65	5.5	14	0.9
Breast.....	1	.....	367	23.7
Uterus.....	0	.....	291	18.8
Skin.....	14	1.2	11	0.7
TOTAL.....	80	6.7	683	44.1
Other Sites.....	1,107	93.3	867	55.9
ALL SITES.....	1,187	100.0	1,550	100.0

In 1938, a total of 1,117 deaths were attributed to cancer of accessible sites (oral cavity, breast, uterus and skin) This is 25 per cent. of all cancer deaths. Of these 763 or 68 per cent. were under 70 years and 503 or 45 per cent. (11 per cent. of all cancer deaths) were among persons under 60 years of age.

While these figures may not at first sight loom very large, they serve to assist in delineating the problem. They show for example that a very important contribution can be made *even now* in female cancer—44 per cent. of the cancer deaths at ages under 70 years being cancers of accessible sites. In males, the picture is definitely *not* so bright. Only 6.7 per cent. of all cancer deaths at these ages were due to cancer of "accessible" sites, while over half (58 per cent.) were cancers of the digestive tract.

NEWER STATISTICAL DATA

Three important contributions have recently been made to the accumulating statistical data on cancer. Most important on the mortality side is the work presented in the Registrar General's Decennial Supplement for England and Wales (Part III (a)—Occupation—1931).

In this study the standardized cancer mortality ratios (S.M.R.'s) by social class (I to V) are included for married and single women as well as for occupied and retired males. Here it is shown that the class gradients for cancer of the upper alimentary canal (buccal cavity, oesophagus and stomach) for males and married females are similar, the S.M.R.'s increasing as the social scale is descended. Hence the factors responsible for the gradient are almost as effective among the wives of men engaged in the various occupations forming the social classes as among the men themselves. It is concluded that these factors are connected to a greater degree with general economic circumstances, home life or dietaries associated with occupations than with the occupations themselves.

For cancer of the larynx no significant gradient is shown for married women, hence the marked male gradient may be directly associated with occupation. In cancer of the skin, married women show a class gradient similar to males (S.M.R.'s following the same pattern as in upper alimentary cancer) showing that peculiarities of occupation are not the *only* factors concerned.

An important fact revealed for the first time is the regular gradient of mortality from uterine cancer from 65 in class I to 130 in class V. Among married women the rates are markedly in excess of those for single women. The similar gradient in cancer of uterus mortality in single women by social class seems to suggest that factors closely bound up with social class which are productive of uterine cancer, other than pregnancy and childbearing, must exist.

The sites in which cancer mortality is highest in classes I and II and lowest in IV and V, (i.e., the reverse of upper alimentary cancer, skin and uterus) include breast, ovary, testes. In ovary and breast the gradient is striking (138 to 82 and 143 to 83). In ovarian cancer a lesser gradient in single women suggests that fertility may be a factor. In cancer of the breast, single women show much higher mortality than married women, as with cancer of ovary. The gradient with social class in married women is much more marked than for single women. The combined rates for the two sites, uterus and breast, still show an appreciable gradient by social class. Perhaps marital condition and parturient history help to determine which site will be affected.

Using Ontario data, it has already been shown that the excess mortality from cancer of uterus among married women over single women is striking. In breast and ovaries the reverse is true.

The series of articles published by Dr. Percy Stocks in the annual reports of the British Empire Campaign have indicated the nature of certain geographic variations in cancer mortality by site. The precise meaning of these variations is doubtful but they are of a significant order and direct attention to further fields of inquiry.

The first real attempt to learn something about the incidence and prevalence of cancer was undertaken by the Division of Public Health Methods in co-operation with the National Cancer Institute in the United States. This undertaking, designed to cover a wide area, is concerned with determining the number of living persons who have cancer. The study covered *all* cases seen, treated or observed during a calendar year. The first report on the work appeared in 1939. The procedure was similar to that to be employed in the Middlesex Cancer Survey described above.

The striking finding reported is that "the number of cases alive at any time during the year per recorded death, was 5.3." This figure includes all "cases" reported as under observation or treatment and does not appear to mean a prevalence of this rate and certainly the *incidence* (new cases each year) is *not* at such a level. Sixty per cent. of female cases were of skin, cervix and breast. In males, buccal cavity and skin made up 55 per cent. of all "cases."

Sufficient data are not as yet available to assess the precise significance of the findings. Division of reported cases into (a) new cases during the year, (b) old cases still under treatment and (c) cases under observation only, is essential. Ratios of cases to deaths by site are also important. Data such as these are important in developing a satisfactory program and it is expected that the Middlesex Cancer Survey will demonstrate much in this respect.

THE WORK OF THE CANCER CENTRES DURING 1939

The following report presents an analysis of the work of the Cancer Centres during 1939, together with certain supplementary studies based on the case records. The tabulations throughout were made by the Division of Medical Statistics from data available on the "follow-up cards" submitted by the seven Centres.

In Table I is given a summary of the volume of new cases for each clinic during the calendar year 1939.

TABLE I
NEW CASES ADMITTED BY CENTRE
CALENDAR YEAR 1939

CENTRE	NEW CANCER CASES						Non-Cancer Cases†	Total New Patients Treated
	On Record			Treated*				
	Private	Public	Total	Private	Public	Total		
Hamilton ..	268	108	376	266	108	374	389	763
Kingston...	130	55	185	129	55	184	325	509
London.....	77	76	153	76	67	143	138	281
Ottawa (C)	184	106	290	175	92	267	230	497
Ottawa (G)	56	73	129	51	64	115	113	228
Toronto.....	503	512	1,062‡	503	512	1,015	529	1,544
Windsor.....	146	49	195	136	33	169	131	300
TOTAL	1,364	979	2,390‡	1,336	931	2,267	1,855	4,122

*Treated by any method or combination. Includes cases treated by surgery alone, but excludes palliative surgery.

†Non-malignant tumours and non-neoplastic diseases.

‡Including 47 cases not treated which are not included in "Private" and "Public" columns.

A total of 2,390 new cancer patients were *admitted* during the year (i.e. presented themselves for treatment). This is an increase of 186 over the previous year. All but 123 or 5.1 per cent. received some form of treatment. In addition, 1,855 patients were treated for benign tumours or non-neoplastic conditions. This is an increase of 275 or 17.4 per cent. Difference in the criteria distinguishing private from public cases for purposes of record may be responsible for the observed variation in the ratio of private to public cases from one Centre to another. Public cases comprised 41 per cent. of the total number of new cancer cases treated during the year.

The distribution of the 2,390 new cases *admitted* to the seven Centres during the year, by site of disease in broad groups, is given in Table II.

TABLE II
NEW CANCER CASES ADMITTED—BY SITE OF DISEASE
CALENDAR YEAR—1939

CENTRE	Breast		Uterus		Oral Cavity		Air Passages		Rectum		Other Sites		TOTAL	
	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Private	Public
Hamilton.....	72	18	29	27	24	11	6	2	5	3	132	47	268	108
Kingston.....	21	8	8	6	29	6	5	1	2	3	65	31	130	55
London.....	18	9	9	14	15	7	0	2	3	1	32	43	77	76
Ottawa (C).....	32	13	7	22	29	16	4	0	3	5	109	50	184	106
Ottawa (G).....	12	10	4	8	3	14	3	1	3	1	31	39	56	73
Toronto*.....	91	86	38	89	83	104	7	16	4	2	280	215	503	512
Windsor.....	30	4	14	4	18	4	1	1	9	2	74	34	146	49
Total.....	276	148	109	170	201	162	26	23	29	17	723	459	1,364	979
Total by Site†.....	431		285		366		50		49		1,209		2,390	
Per Cent.....	18.0		11.9		15.3		2.1		2.1		50.6		100.0	

*Not treated cases excluded—breast 7, uterus 6, oral 3, air passages 1, rectum 3, general 27; Total 47.

†Toronto Clinic not treated cases are included here.

A total of 431 breast cases and 285 uterus cases were admitted during the year. Breast, uterus and oral cavity comprised 43 per cent. of private cases and 50 per cent. of public cases.

A comparison of the volume of new cancer cases treated by radiotherapy (alone or in combination with surgery or other methods) in each Centre during the three years 1937 to 1939, is given in Table III.

TABLE III
NEW CANCER CASES TREATED BY RADIOTHERAPY*
1937-1939

CENTRE	Private			Public			TOTAL		
	1937	1938	1939	1937	1938	1939	1937	1938	1939
Hamilton....	189	233	265	77	69	108	266	302	373
Kingston....	153	135	129	45	48	55	198	183	184
London.....	72	80	75	55	64	64	127	144	139
Ottawa (C)	148	159	172	85	81	85	233	240	257
Ottawa (G)	30	44	41	34	40	55	64	84	96
Toronto.....	505	498	501	470	477	509	975	975	1,010
Windsor.....	108	99	133	28	31	33	136	130	166
TOTAL.....	1,205	1,248	1,316	794	810	909	1,999	2,058	2,225

*Alone or in combination with surgery or other methods. Cases treated by surgery alone and cases not treated are excluded.

The total number of new cancer patients treated by radiotherapy in 1939 was 2,225, an increase over the previous year of 167 or 8.3 per cent. Important increases in case volume are noted for Hamilton and Windsor, these two Centres together contributing two-thirds of the total recorded increase. Kingston and London showed little change while Ottawa and Toronto registered slight gains.

A summary of the new cases *admitted* during the year by site of disease is given in Table IV, the number recorded as alive at December 31, 1939, being shown in each case.

TABLE V.
NEW CANCER CASES TREATED† BY SITE, CENTRE AND STATUS
CALENDAR YEAR—1939

SITE OF CANCER	Hamilton		Kingston		London		Ottawa (C)		Ottawa (G)		Toronto		Windsor		ALL CENTRES		
	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Total
Breast.....	72	18	21	8	18	8	29	13	12	9	91	86	29	4	272	146	418
Cervix Uteri.....	19	19	4	6	6	9	5	16	4	8	25	75	13	3	76	136	212
Corpus Uteri.....	10	8	3	0	3	3	2	2	0	0	13	14	1	1	32	28	60
Lip.....	15	3	24	3	7	4	22	7	2	7	63	48	11	3	144	75	219
Tongue.....	0	2	1	0	2	1	2	1	1	4	5	14	3	0	14	22	36
Other Oral*	9	6	4	3	6	1	5	6	0	2	15	42	4	1	43	61	104
Air Passages†.....	6	2	5	1	0	2	4	0	3	0	7	16	1	1	26	22	48
Rectum.....	5	3	2	3	3	1	2	4	2	0	4	2	8	2	26	15	41
Skin.....	70	19	45	17	18	23	66	13	11	12	181	81	32	7	423	172	595
Ovary.....	7	2	3	1	1	1	3	1	1	1	17	14	6	0	38	20	58
Other Sites.....	53	26	17	13	12	14	35	29	15	21	82	120	28	11	242	234	476
TOTAL	266	108	129	55	76	67	175	92	51	64	503	512	136	33	1,336	931	2,267
CLINIC TOTALS	374		184		143		267		115		1,015		169		2,267		
																	

*Includes tonsil, buccal surface of cheek, etc.
†By radium, X-ray or surgery, or any combination of those three.
‡Includes air sinuses, larynx, pharynx and nasal fossae.

Of the total new *treated* cases, the breast constituted 18.4 per cent., the uterus 12.0 per cent., buccal cavity 15.8 per cent., and skin 26.3 per cent. These four groups together made up 72.5 per cent. of all treated cases. Substantial variations exist between the several Centres, the reasons for which are somewhat obscure. The differences in the ratio of cervix to corpus uteri cases from clinic to clinic are remarkable. For all clinics combined, the ratio is 3.5 to 1. Evidently no conclusions can be drawn from these figures as to the true relationship existing in the population as a whole. Some real direction in this respect may be expected when results of the Middlesex Cancer Survey become available during 1940.

The difference by site in the ratio of private to public cases is due to some degree to variation in defining the status of patients for this purpose. Uniformity in this respect may be *expected* to eliminate most of the recorded differences.

Some increase in the number of breast, cervix uteri and oral cases (except tongue in which there is a reduction) compared with the previous year is gratifying because it is in these sites particularly (excluding skin) that success in treatment has been established.

Stage of Disease at the Beginning of Treatment.

The importance of early treatment is repeatedly emphasized. Clinical evidence of the need rests on the known marked differences in survival rates in early and late cases. Since a successful outcome to treatment depends so much on the stage of disease when treatment is begun, considerable interest attaches to any trends toward earlier treatment such as might be reflected by—a lessening of the interval between first symptoms and diagnosis as well as between diagnosis and treatment, and by the stage of disease when treatment is begun.

In assessing any trend in the proportion which early cases form of total cases treated, over a period of years, it must be kept in mind that with improvement in methods, treatment is now being undertaken in many cases which were formerly considered too far advanced for treatment. This tends to weight the frequency of advanced cases.

In the third annual report (1938) evidence was presented to indicate encouraging improvement in the proportion of early *breast* cases (and reduction in the proportion of late cases), the percentage of stage I cases (disease still localized in the breast) having increased from 21.6 in 1934 to 32.3 in 1938. No comparable evidence of earlier treatment was available for other sites in the "accessible" group.

Data on stages of disease among patients treated from 1934 to 1938 were presented in the Third Annual Report (1938) for breast, cervix, oral cavity and skin cases. These figures may now be conveniently compared with those for 1939 (Table VI).

TABLE VI
STAGE OF DISEASE ON ADMISSION—CERTAIN SITES*
NEW TREATED CASES—1934-38 AND 1939

SITE OF CANCER	Stage of Disease	1934-1938		1939	
		Cases	Per Cent.	Cases	Per Cent.
Breast.....	I	271	28.9	78	34.5
	II	372	39.7	102	45.1
	III	295	31.4	46	20.4
	Total	938	100.0	226	100.0
Cervix Uteri	I	121	14.9	26	13.2
	II	271	33.3	75	38.1
	III	316	38.9	65	33.0
	IV	105	12.9	31	15.7
	Total	813	100.0	197	100.0
Lip.....	I	656	74.2	160	81.6
	II	177	20.0	26	13.3
	III	39	4.4	8	4.1
	IV	12	1.4	2	1.0
	Total	884	100.0	196	100.00
Tongue.....	I	39	22.9	10	31.3
	II	60	35.3	14	43.8
	III	53	31.2	8	25.0
	IV	18	10.6	0	.....
	Total	170	100.0	32	100.0
Other Oral.....	I	59	18.0	15	17.6
	II	159	48.6	41	48.2
	III	78	23.9	25	29.4
	IV	31	9.5	4	4.7
	Total	327	100.0	85	100.0
Skin.....	I	1,943	84.0	482	88.0
	II	287	12.4	45	8.2
	III	61	2.6	17	3.1
	IV	21	0.9	4	0.7
	Total	2,312	100.0	548	100.0

NOTE:—Data cover all clinics for years 1935-1939, but only Toronto, Hamilton, Kingston and Ottawa Civic for 1934.

*Recurrences excluded.

Of the new breast cases, 34.5 per cent. were recorded as stage I, while 20.4 per cent. were in stage III on admission. Of 197 new cases of cancer of cervix uteri, only 26 or 13.2 per cent. were stage I, while 48.7 per cent. were in stages III and IV. Excluding skin cases (of which 88 per cent. were stage I) only 39.3 per cent. of the patients with cancer of breast, cervix uteri and oral cavity presented themselves for treatment before local spread, extension or metastasis, had occurred. This is a measure of the extent to which cases are treated at an early stage though, in many of these, symptoms may have been present for some considerable time.

Compared with available data for preceding years, encouragment of importance is limited to breast cases. Of special interest in this connection is the steady decline in stage III cases, from 40.2 per cent. of all cases in 1934 to 20.4 per cent. in 1939. The picture in cancer of cervix uteri is not much improved, half of the cases still being stage III or IV. *However*, a recent summary of the work of sixteen radiotherapeutic centres published by the League of Nations* indicates that this situation is general. Indeed Ontario figures are somewhat the more encouraging of the two.

Evidence of greater delay (in terms of stage of disease when treatment was begun) in public patients compared with private patients persists. In Table VII data on stages of disease for certain sites are given to illustrate the point.

TABLE VII

STAGES OF DISEASE—PUBLIC AND PRIVATE CASES—CERTAIN SITES*

NEW CASES TREATED ONLY—1939

STAGE	BREAST				CERVIX UTERI				ORAL CAVITY			
	Private		Public		Private		Public		Private		Public	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
I.....	61	36.5	17	28.8	7	10.1	19	14.8	128	70.7	57	43.2
II.....	83	49.7	19	32.2	31	44.9	44	34.4	39	21.5	42	31.8
III.....	23	13.8	23	39.0	24	34.8	41	32.0	12	6.6	29	22.0
IV.....	.....	.....	.....	.....	7	10.1	24	18.8	2	1.1	4	3.0
TOTAL....	167	100.0	59	100.0	69	100.0	128	100.0	181	100.0	132	100.0

*Excluding recurrences.

The observed differences are similar to those recorded last year and they are of practical importance in control. The explanation may indicate, to a degree, the relative needs for education on cancer.

By and large the situation as recorded serves to emphasize the gain to be anticipated if the proportion of cases (particularly of accessible sites) treated early can be increased. The statistical report of the National Radium Commission for 1935-36 indicated that five year *net* survival rates in breast cases were as follows:—Stage I, 50.0 per cent.; Stage II, 22.4 per cent., and Stage III, 13.6 per cent. For cervix uteri the figures were 49.4 in Stage I, 43.7 in Stage II, 24.0 in Stage III and 7.2 per cent. in Stage IV cases. These figures and others like them should be a powerful factor in any educational programs.

Classification of New Cases Admitted During 1939.

In Table VIII a summary of the new cases admitted during 1939 is presented indicating the number of patients admitted with recurrences and the number not treated, by site of disease.

*Annual Report on the Results of Radiotherapy in Cancer of the Uterine Cervix, Edited by J. Heyman, M.D., League of Nations Health Organization, C. H. 1427, 1939.

TABLE VIII
CLASSIFICATION OF NEW CASES ADMITTED DURING 1939

SITE OF CANCER	CLASSIFICATION				TOTAL
	Primary	Previous	Recurrent	Not Treated	
Breast.....	103	247	68	13	431
Cervix Uteri.....	198	5	9	10	222
Corpus Uteri.....	42	15	3	3	63
Oral Cavity.....	327	12	20	7	366
Air Passages.....	43	2	3	2	50
Rectum and Anus.....	38	1	2	8	49
Skin.....	532	31	32	10	605
Other Sites.....	381	106	47	70	604
TOTAL.....	1,664	419	184	123	2,390
PER CENT.....	69.6	17.5	7.7	5.1	100.0

Excluding recurrences in the untreated group, there were 184 new cases admitted with recurrences. This is 8.1 per cent. of all new treated cases, and compares with 7.3 per cent. in 1938. For breast cases alone the proportion of all new cases which were admitted with recurrences was 16 per cent. Certain information on the nature of treatment after which the recurrences occurred in the 1938 cases, is given later in this report.

Histological Confirmation of Clinical Diagnosis.

A pathological report was available in 1,750 of 2,267 new treated cases. Table IX gives the frequency of histological examination by site of disease for public and private cases separately.

TABLE IX
HISTOLOGICAL EXAMINATION—BY SITE OF DISEASE
NEW CASES TREATED DURING 1939

SITE OF CANCER	Pathol. Done		No. Path. Exam.		No Data		TOTAL	
	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.
Breast.....	180	108	31	11	61	27	272	146
Cervix Uteri.....	62	122	7	7	7	7	76	136
Body of Uterus.....	24	25	4	1	4	2	32	28
Oral Cavity	147	140	48	12	6	6	201	158
Air Passages.....	17	20	7	1	2	1	26	22
Rectum and Anus.....	23	13	1	2	2	....	26	15
Skin.....	269	138	139	29	15	5	423	172
Other Sites.....	180	182	53	30	47	42	280	254
TOTAL CANCER	902	748	290	93	144	90	1,336	931
PER CENT.....	67.5	80.3	21.7	10.0	10.8	9.7	100.0	100.0

Histological confirmation of clinical diagnosis was available in 68.9 per cent. of breast cases, in 86.8 per cent. of cervix uteri cases, in 79.9 per cent. of oral cases and in 68.4 per cent. of skin cases. The latter figure represents considerable improvement over 1938 when the percentage was below 50.

There are still wide variations from clinic to clinic in the proportion of cases for which a pathological report is available. Table X gives a summary of the figures for each clinic for breast, uterus, oral cavity, air passages and rectum cases only. Percentages are based on total cases, *assuming* that where no data were available no examination had been done.

TABLE X
HISTOLOGICAL EXAMINATIONS—CERTAIN SITES*
NEW CASES TREATED DURING 1939

CENTRE	Private Cases			Public Cases		
	Histological Exams.		Total	Histological Exams.		Total
	Number	Per Cent.		Number	Per Cent.	
Hamilton.....	101	74.3	136	54	88.5	61
Kingston.....	27	42.2	64	11	45.8	24
London.....	43	95.6	45	27	93.1	29
Ottawa (Civic).....	62	84.7	71	45	91.8	49
Ottawa (General).....	21	87.5	24	26	86.7	30
Toronto.....	145	65.0	223	253	85.2	297
Windsor.....	54	77.1	70	12	80.0	15
ALL CENTRES.....	453	71.6	633	428	84.8	505

*Including breast, uterus, oral cavity, air passages and rectum.

Hamilton, London and Ottawa (General) all show quite substantially higher proportions of cases with histological examination than they did in 1938. Figures for Toronto, Kingston and Windsor, however, are lower. Less than 50 per cent. of Kingston cases were confirmed by tissue examination.

Confirmation of clinical diagnosis by tissue examination is a most important element in case analysis as well as in treatment and prognosis. There appears to be no evidence to support the contention that biopsy is to be avoided, rather is it to be urged that, in general, biopsy should be done in all cases. Exceptions to this rule are few. The recorded improvement in the extent to which all cases are confirmed by biopsy is noteworthy.

Prognosis.

Each follow-up card provides for a statment of whether the patient is regarded at the outset as treatable for cure or for palliation only. Table XI gives a summary of the new 1939 cases on this basis.

TABLE XI
TOTAL NEW CASES BY PROGNOSIS
CALENDAR YEAR 1939

SITE	Treatable for			No Data	Not* Treated	TOTAL
	Cure	Palliation	Ratio			
Breast.....	175	105	1.7	138	13	431
Cervix Uteri.....	56	77	0.7	79	10	222
Body of Uterus.....	27	15	1.8	18	3	63
Lip.....	152	2	76.0	65	2	221
Tongue.....	18	4	4.5	14	2	38
Other Oral.....	32	27	1.2	45	3	107
Air Passages.....	9	19	0.5	20	2	50
Rectum.....	6	28	0.2	7	8	49
Skin.....	553	23	24.1	19	10	605
Ovary.....	7	26	0.3	25	3	61
Other Sites.....	78	205	0.4	193	67	543
TOTAL CANCER	1,113	531	2.1	623	123	2,390
PER CENT.....	46.6	22.2	.....	26.1	5.1	100.0

*For any reason—see subsequent section and tabulation.

In 1,113 or 46.6 per cent., the patient was recorded as treatable for cure. Excluding cases for which no data were recorded (623), two thirds of cases were classified as treatable for cure. The ratio of cases by prognosis for various sites in Table XI reflects, among other things, the stage of disease when treatment was begun and the susceptibility to treatment in general.

Such data are of value in studying the relationship between the prognosis recorded in each case *when treatment was begun*, in terms of the actual result obtained. In other words they can be employed by the Centres as a further measure of clinical case appraisal.

Method of Treatment.

As a means of reflecting treatment undertaken during the year, a general summary of the methods of treatment among new cases in 1939 (excluding recurrences) is given in Table XII.

TABLE XII
METHOD OF TREATMENT OF NEW CASES DURING 1939—BY SITE*

TREATMENT	SITE OF DISEASE								TOTAL	
	Breast	Cer- vix Uteri	Cor- pus Uteri	Oral Cav- ity	Air Pas- sages	Rec- tum	Skin	Other Sites	No.	Per Cent.
X-Ray.....	54	49	12	51	30	25	99	247	567	25.7
Radium.....	2	14	8	168	2	2	370	18	584	26.5
Radium & X-Ray.....	9	129	17	94	5	3	29	27	313	14.2
Surgery & X-Ray.....	259	4	12	6	5	3	30	144	463	21.0
Surgery & Radium.....	0	2	3	9	2	0	26	23	65	3.0
Surg., Rad. & X-Ray..	20	5	5	8	1	2	5	3	49	2.2
Not Treated.....	12	10	3	7	2	8	10	68	120	5.4
Surgery Alone.....	6	0	0	3	0	4	4	25	42	1.9
TOTAL.....	362	213	60	346	47	47	573	555	2,203	100.0

*Recurrences excluded.

Of all treated cases (exclusive of recurrences) 584 patients out of 2,083 were treated by radium alone. This is 28.0 per cent., and compares with 30.7 per cent. during 1938. Radium, alone or with X-ray, surgery or both, was used in 1,011 or 48.5 per cent. of new cases (51.7 per cent. in 1938). The trend from year to year can be determined *only* by consideration of individual sites, however, because of possible changes in the relative proportion of cases of different sites from year to year.

The number of cases treated by X-ray alone shows a substantial increase over 1938. This is the general experience elsewhere. The relative proportions of cases of each site treated by any method or combination can be ascertained from Table XII.

A summary of treated cases by Centre and method of treatment is given in Table XIII.

TABLE XIII
NEW TREATED CASES BY CENTRE AND METHOD OF TREATMENT*
CALENDAR YEAR 1939

METHOD OF TREATMENT	Ham- ilton	King- ston	Lon- don	Otta- wa(C)	Otta- wa(G)	Toron- to	Wind- sor	TOTAL CASES
	CASES							
X-Ray.....	169	44	27	37	22	216	52	567
Radium.....	22	65	47	75	9	341	25	584
Radium and X-Ray.....	43	23	11	58	12	124	42	313
Surgery and X-Ray.....	90	34	28	66	41	190	14	463
Surgery and Radium.....	4	9	7	2	1	38	4	65
Surgery, Radium and X-Ray..	4	1	5	8	4	12	15	49
Surgery Alone.....	1	0	4	10	19	5	3	42
TOTAL.....	333	176	129	256	108	926	155	2,083
METHOD OF TREATMENT	PER CENT.							TOTAL
X-Ray.....	50.8	25.0	20.9	14.5	20.4	23.3	33.5	27.2
Radium.....	6.6	36.9	36.4	29.3	8.3	36.8	16.1	28.0
Radium and X-Ray.....	12.9	13.1	8.5	22.7	11.1	13.4	27.1	15.0
Surgery and X-Ray.....	27.0	19.3	21.7	25.8	38.0	20.5	9.0	22.2
Surgery and Radium.....	†	5.1	5.4	†	†	4.1	†	3.1
Surgery, Radium and X-Ray..	†	†	3.9	3.1	†	1.3	9.7	2.4
Surgery Alone.....	†	.....	†	3.9	17.6	0.5	†	2.0
TOTAL.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Excluding recurrences.
†Percentages calculated only where 5 or more cases.

The percentage of new treated cases in which radium (either alone or in combination with other methods of treatment) was used varied as follows:—Hamilton 21.9 per cent., Kingston 55.7 per cent., London 54.2 per cent., Ottawa Civic 55.9 per cent., Ottawa General 24.0 per cent., Toronto 55.6 per cent., and Windsor 55.5 per cent. While these data suggest significant differences from clinic to clinic in the proportion of patients in whom radium was used, variation in the proportion of cases of the several sites treated is a factor. Attention was drawn to the observed differences in the 1938 report.

For cervix uteri, oral cavity and skin cases the following data are illustrative (Table XIV).

TABLE XIV
PROPORTION OF CASES TREATED WITH RADIUM—BY CENTRE†
CALENDAR YEAR 1939

CENTRE	Radium Alone (%)			Radium in Combination* (%)		
	Cervix	Oral	Skin	Cervix	Oral	Skin
Hamilton.....	5	33	6	62	23	12
Kingston.....	0	57	69	40	97	97
London.....	0	78	85	79	83	95
Ottawa (C).....	0	26	82	90	87	88
Ottawa (G).....	8	38	9	75	88	9
Toronto.....	18	58	80	78	82	90
Windsor.....	0	11	64	75	11	100
TOTAL (%)..	7	50	66	74	78	78

*Alone or with X-ray, surgery or both.

†Recurrences excluded.

These data indicate the basis of variations more specifically. In oral cases, radium alone is used much less frequently in Hamilton, Ottawa and Windsor than in other Centres. In skin cases, the Hamilton and Ottawa (General) clinics use radium alone rather infrequently compared with total general experience. Differences are observed also in the data on radium alone or in combination with other methods. In the case of Hamilton and Ottawa (General), skin cases stand out in contrast to all other Centres. In cervix cases the variations are also interesting.

Untreated Cases.

Cards were submitted covering a total of 123 patients who were admitted but *not treated* for any reason during the year. Of these, 38 were recorded as private and 68 as public, while 17 were not classified. The number of such cases reported by each clinic centre was as follows—Hamilton 2, Kingston 1, London 10, Ottawa Civic 23, Ottawa General 14, Toronto 47, and Windsor 26. For the purposes of this analysis palliative surgery was *not* considered as treatment.

A summary of the reasons recorded for non-treatment are shown in Table XV.

TABLE XV
UNTREATED CANCER CASES—REASON FOR NON-TREATMENT
CALENDAR YEAR 1939

REASON FOR NON-TREATMENT	SITE OF DISEASE						TOTAL
	Breast	Uterus	Oral Cavity	Air Passages	Rectum	Other Sites	
Too far advanced.....	5	11†	2	0	5	38	61
Refused treatment	1	1	2	0	0	7	11
Did not return.....	2	0	2	1	1	9	15
Died before treatment	0	0	0	0	0	1	1
Co-existent disease	0	1	0	0	0	1	2
Age & general condition...	1	0	0	0	0	5	6
Other* or no data	4	0	1	1	2	19	27
TOTAL.....	13	13	7	2	8	80	123
TOTAL TREATED	418	272	359	48	41	1,129	2,267

*Includes cases designated “referred for surgery” (8), “observation” or “check-up” (7).

†Three body of uterus.

It is of interest that the number of patients considered too far advanced for treatment has not changed from last year and it is equivalent to about 3 per cent. of the total cases admitted. Eleven uterus cases (8 cervix and 3 body) were too advanced for treatment—testimony of the late stage at which many of these cases reach the clinics. The clinic source of these latter cases was as follows—Kingston (1), London (2), Ottawa Civic (4) and Toronto (6).

The volume of these cases is of especial interest in relation to the total number treated in breast, cervix and oral cavity especially. A total of 15 patients with cancer of these sites—were considered too far advanced for treatment out of 1,049 (1.5 per cent.) In sites included under "Others" (digestive tract, etc.,) the true significance of the number of cases is obscure since comparable data on many who do *not* reach the clinics is not ascertainable. In subsequent years, greater detail in site tabulation and data on age, etc., will be useful.

Age and Sex of New Patients Treated in 1939.

The distribution of the new *treated* cases by sex at ages and by site of disease is given in Table XVI.

It is interesting to compare these data with the mortality statistics presented earlier in this report. There are no new findings. The female excess in the total treated case volume is small and in view of the marked sex differences in breast and oral cancer, the fairly equal representation of males and females is remarkable.

These figures should be compared with the data on mortality by age and sex given in preceding sections (vide supra page 196). The marked sex ratio in breast, oral and skin cancer are well known. There is no reason to presume any sex selection in these data so that the observed ratios for "accessible" sites may be expected to reflect the facts pretty well. The Middlesex survey may provide further confirmation and more reliable data for *other* sites.

Hospitalization

The large volume of general hospital care required for cancer cases is emphasized by data presented in the Report of the Division of Medical Statistics (pages 54-56). Other studies upon this aspect of the problem, now in progress, will throw more light on the subject, especially when the findings are reviewed in relation to the results of the Middlesex County Cancer Survey.

A summary of the data on hospitalization of new cancer patients treated during 1939 showed a greater average stay of "public" cases in keeping with the general experience. Of the public cases 25 per cent. were hospitalized during the year and of the private cases 23 per cent. Breast and cervix cases contribute a great part of the total volume of hospital days. Variations in the proportion of total new cases hospitalized, by Centre, are substantial.

TABLE XVI
NEW CASES TREATED DURING 1939—BY AGE AND SEX
CALENDAR YEAR—1939

SITE OF CANCER	Under 40		40-49		50-59		60-69		70-79		80+		Not Stated		Total	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Breast.....	0	49	0	99	1	131	1	85	1	37	1	6	0	7	4	414
Cervix Uteri.....	0	37	0	61	0	64	0	39	0	6	0	3	0	2	0	212
Body of Uterus.....	0	3	0	9	0	21	0	13	0	9	0	1	0	4	0	60
Lip.....	13	0	29	2	41	0	50	1	53	1	23	2	4	0	213	6
Tongue.....	1	0	2	1	4	2	12	1	7	2	3	0	0	0	30	6
Other Oral.....	4	0	9	2	11	2	30	1	31	2	10	1	1	1	95	9
Air Sinuses.....	1	0	2	2	0	2	2	0	0	0	0	0	0	0	5	4
Larynx.....	0	0	1	0	6	0	1	0	2	1	1	0	0	0	11	1
Other Air Passages.....	0	1	4	1	3	4	3	2	6	1	1	0	1	0	18	9
Rectum and Anus.....	3	2	1	1	7	6	8	4	5	4	0	0	0	0	24	17
Skin.....	23	20	39	21	60	46	79	67	105	58	46	23	7	1	359	236
Ovary.....	0	9	0	15	0	21	0	11	0	0	0	0	0	2	0	58
Other Digestive Tract.....	0	0	11	2	9	10	10	2	3	4	0	0	2	2	35	20
Other Sites.....	68	36	28	20	55	33	62	36	30	25	8	7	5	8	256	165
Total Cancer Cases.....	113	157	126	236	197	342	258	262	243	150	93	43	20	27	1,050	1,217
Per Cent. (By Sex).....	10.8	12.9	12.0	19.4	18.8	28.1	24.6	21.5	23.1	12.3	8.9	3.5	1.9	2.2	100.0	100.0
Ratio of Males to Females	0.72		0.53		0.58		0.98		1.62		2.16		0.74		0.86	

Professional Interest in the Cancer Clinic Service.

One index of the success of efforts in the field of Cancer Control is some evidence of growing awareness of the problem and co-operation in effecting early treatment. The large number of physicians now referring cases to the clinics is evidence of this sort. Table XVII gives a summary by Centre of the number of physicians referring cases in relation to the number of new cases *admitted* during 1939.

TABLE XVII
REFERRING PHYSICIANS BY CENTRE
CALENDAR YEAR 1939

CENTRE	New Cases on Record	No. of Different Referring Physicians	Different Physicians per New Case
Hamilton.....	376	181	0.48
Kingston.....	185	89	0.48
London.....	153	96	0.63
Ottawa (C).....	290	130	0.45
Ottawa (G).....	129	43	0.33
Toronto.....	1,062	457	0.43
Windsor.....	195	104	0.53
TOTAL	2,390	1,100	0.46

Thus 1,100 different physicians, or more than one-quarter of the total number engaged in practice in the province, referred one or more new cases for treatment during 1939. One referring physician for every two new cases is good evidence of the established recognition of the treatment centres in the minds of both the public and the medical profession.

Geographic Distribution of New Treated Cases.

Further data has been compiled on the distribution of patients by area of residence. Last year, reference was made to the fact that the case load (in relation to population) was heaviest in and adjacent to the counties where clinics were located. In Table XVIII the new treated cases are distributed by county or district of residence and case rates per 100,000 population given for purposes of comparison.

TABLE XVIII
NEW CANCER CASES (TREATED)—BY AREA OF RESIDENCE—1939

COUNTY OR DISTRICT OF RESIDENCE	Population†	Total Cases—All Sites		Accessible Sites Only	Public Cases All Sites
		Number	Rate*		
Addington.....	7,500	8	107	8	1
Algoma.....	50,650	20	40	18	8
Brant.....	58,530	19	32	14	10
Bruce.....	46,150	25	54	19	6
Carleton.....	186,100	233	125	158	103
Cochrane.....	63,410	30	47	24	12
Dufferin.....	16,130	13	81	7	8
Dundas.....	17,630	15	85	11	6
Durham.....	28,140	9	32	6	2
Elgin.....	47,650	19	40	18	10
Essex.....	174,840	139	80	88	31
Frontenac.....	49,900	60	120	43	19
Glengarry.....	20,260	8	40	7	6
Grenville.....	18,010	7	39	5	3
Grey.....	63,030	22	35	18	8
Haldimand.....	23,260	22	94	18	8
Haliburton.....	6,380	5	78	4	3
Halton.....	28,890	33	114	23	8
Hastings.....	64,530	35	54	29	14
Huron.....	49,530	21	42	14	4
Kenora‡.....	28,510	1	4	.....	1
Kent.....	68,660	44	64	37	17
Lambton.....	59,660	16	27	13	3
Lanark.....	36,020	24	67	17	5
Leeds.....	38,650	26	67	17	9
Lennox.....	13,130	16	122	14	1
Lincoln.....	59,280	41	69	33	16
Manitoulin.....	11,630	4	34	4	.....
Middlesex.....	129,440	67	52	49	29
Muskoka.....	22,890	6	26	3	2
Nipissing.....	45,020	18	40	13	10
Norfolk.....	34,140	6	18	5	3
Northumberland.....	34,520	17	49	17	10
Ontario.....	65,290	39	60	31	14
Oxford.....	52,150	21	40	17	9
Parry Sound.....	28,140	15	53	15	8
Peel.....	30,770	19	62	16	7
Perth.....	56,280	10	18	6	3
Peterborough.....	48,030	14	29	13	4
Prescott.....	27,020	5	18	1	5
Prince Edward.....	18,010	12	67	9	5
Rainy River.....	19,140	.....	.....	.....	.....
Renfrew.....	57,030	45	79	35	11
Russell.....	20,260	14	69	7	7
Simcoe.....	91,550	43	47	37	13
Stormont.....	35,650	14	39	12	5
Sudbury.....	63,790	26	41	20	17
Thunder Bay.....	71,290	23	32	17	8
Timiskaming.....	40,520	21	52	13	11
Victoria.....	28,140	16	57	14	6
Waterloo.....	98,130	52	53	34	20
Welland.....	90,420	37	41	27	17
Wellington.....	63,410	34	54	27	12
Wentworth.....	207,860	240	116	166	78
York.....	936,880	456	49	320	268
Quebec.....	.....	50	.....	31	16
Other Provinces.....	.....	4	.....	.....	.....
U. S. A.....	.....	8	.....	6	.....
Not Stated.....	.....	20	.....	16	11
GRAND TOTAL.....	.....	2,267	.....	1,644	931
ONTARIO TOTAL.....	3,752,000	2,205	58.8	1,607	915

†Estimated for 1939.

*Per 100,000 population.

‡Includes District of Patricia

There are important differences between the clinics in the proportion of various types of cases (sites) treated and there are also important differences in age distribution of the population from area to area. The latter is obviously a leading determining factor in recorded cancer case frequency and mortality.

The case load varies from 125 per 100,000 population in Carleton, 120 in Frontenac, 116 in Wentworth, 80 in Essex, 52 in Middlesex and 49 in York—to 32 in Brant, 32 in Durham, 40 in Elgin, 40 in Glengarry, 39 in Grenville, 35 in Grey, 27 in Lambton, 18 in Norfolk, 40 in Oxford, 18 in Perth, 29 in Peterborough 18 in Prescott, 39 in Stormont, and 41 in Welland. The case rate for the province as a whole was 58.8 compared with 56.7 last year.

Case (and death) rates based on the experience of a single year and on small numbers such as those in Table XVIII are liable to substantial fluctuation from year to year. It is noteworthy, however, that the rates for 1939 follow in general order those for 1938. Counties with low case rates in 1938, still have low rates and vice versa. The degree to which demographic factors alone (age, etc.,) are responsible for the observed wide range in case rates has not yet been investigated, but the differences in Southern Ontario are of too substantial an order to be possibly accounted for entirely in this way.

In future, standardization of case and death rates will be carried out in order to determine, with some precision, the “true” relationship which exists in incidence and frequency between the various parts of the province. A lack of close relationship between the case and death rates need not be surprising in view of the substantial differences in cases received for treatment in various Centres and the suggestive evidence of the influence of distance as a factor in cases reaching the clinics.

It is pointed out that while the case frequency in areas between the clinic centres, is lower than it is in the areas adjacent thereto, this *does not at once* mean that distance is delaying treatment. Patients may be (and undoubtedly are) being treated elsewhere.

Non-Cancer Cases.

During 1939 a total of 1,855 new non-cancer cases were treated in the clinics. This is an increase of 275 over the previous year (17.4 per cent.) Of this number, 823 were benign tumour cases and the rest non-neoplastic conditions. Table XIX gives a summary of these cases.

TABLE XIX
NEW NON-CANCER CASES—1939

NON-MALIGNANT TUMOURS		NON-NEOPLASTIC DISEASES	
Diagnosis	No. of Pts.	Diagnosis	No. of Pts.
Angiomata.....	139	Actinomycosis.....	12
Cysts (various).....	25	Asthma.....	22
Fibromata.....	27	Cervicitis.. ..	23
Keloids.....	22	Diseases of Thyroid.....	22
Keratosis.....	142	Fibrosis Uteri.....	14
Leukoplakia.....	63	Infections, n.s.e.*.....	198
Moles, Naevi.....	56	Mastitis.....	31
Papillomata.....	101	Menorrhagia, etc†.....	215
Polypi.....	5	Parotitis.....	28
Warts.....	182	Pruritus.....	30
Others.....	61	Skin Diseases (various).....	267
		Thymic Enlargement.....	56
		Tuberculosis.....	18
		Others.....	96
TOTAL	823	TOTAL.....	1,032

*Adenitis, chronic inflammation, etc.

†Including menorrhagia, metrorrhagia, menopausal bleeding.

The frequency of "precancerous" lesions such as keratosis and leukoplakia is of great interest. A total of 205 patients received treatment for these conditions (153 in 1938). Data on the follow-up of such cases will be useful.

This concludes the analysis of the 1939 case experience of Ontario's seven Cancer Centres. The increase in case volume and the widespread source of patients are encouraging evidence of the broad sphere of influence and of the important service rendered by them in cancer control in Ontario.

SUPPLEMENTARY STUDIES

Previous Treatment in Recurrences.

Attention was directed in the 1938 report to the proportion of new clinic cases who were admitted with recurrences. A total of 135 *new* patients with cancer of the breast, uterus, oral cavity, rectum or skin were admitted to the seven cancer centres with recurrences during 1938. A review of the treatment after which these recurrences occurred is given in Table XX.

TABLE XX

NATURE OF PREVIOUS TREATMENT—PATIENTS ADMITTED WITH RECURRENCES—CERTAIN SITES—1938

TREATMENT*	SITE						TOTAL
	Breast	Corpus Uteri	Cervix Uteri	Oral Cavity	Rectum	Skin	
Surgery— Locally	32	6	7	9	5	15	74
Outside	14	1	2	1	.....	1	19
S. & X.R.— Locally	11	.....	.....	.....	.....	2	13
Outside	7	.....	.....	.....	.....	.....	7
X. or R.— Locally	1	.....	2	1	.....	6	10
Outside	1	.....	.....	5	.....	6	12
TOTAL	66	7	11	16	5	30	135
TOTAL NEW CASES†	401	62	201	346	51	349	1,610

*"Locally" means in the municipality where the hospital is located.

†Treated cases.

These patients were all *new* patients as far as the clinics were concerned. The treatment "previously" received was therefore all given *before* the patients entered the clinic at all. Such treatment is presented in broad terms only, the object being merely to indicate certain of the essentials.

One-half of all patients admitted with recurrences of the specified sites were breast cases. In breast and skin cases there were more recurrences in patients classed as private. This means little in itself since we are ignorant of the proportion of all cases from which these recurrences came which were private and public.

Completeness of Follow-Up.

Using patients treated during 1938 and followed during 1939 as a basis, a study was made of the frequency with which patients were lost or were not followed up within 6 months of the first anniversary of treatment. The data obtained for six clinics are given in Table XXI.

TABLE XXI
COMPLETENESS OF FOLLOW-UP—PATIENTS TREATED IN 1938

CLINIC	SITE OF DISEASE—NUMBER OF CASES*					ALL SITES		
	Breast	Uterus	Oral	Skin	Others	Cases	Not Seen	%
Hamilton.....	60(1)	46(0)	27(5)	84(1)	85(0)	302	7	2.3
Kingston.....	42(2)	18(1)	31(1)	57(1)	38(0)	186	5	2.7
London.....	18(0)	14(0)	25(0)	50(1)	39(0)	146	1	0.7
Ottawa (C.).....	41(1)	23(2)	45(1)	75(0)	69(5)	253	9	3.6
Ottawa (G.).....	18(0)	7(0)	19(3)	18(3)	35(2)	97	8	8.2
Windsor.....	23(0)	27(0)	18(2)	25(2)	43(1)	136	5	3.7
TOTAL.....	202(4)	135(3)	165(12)	309(8)	309(8)	1,120	35	3.1

*Cases not followed are bracketed.

Most difficulty is naturally experienced with skin cases in which results are so frequently rapid and dramatic, but some difficulty has also been experienced in other sites, especially in private patients. On the whole the relative fewness of *true* lost cases is reassuring in respect to the ultimate accuracy of follow-up data.

Important in connection with the follow-up is the source of the information recorded as to the condition of patients—e.g., *direct*, by examination at the clinic or *indirect*, by correspondence or other means through the patient or referring physician. Differences in practice in this respect undoubtedly are a factor in the accuracy of the data. It may be difficult in *some* cases to recall patients for examination even once a year without considerably more in the way of professional and public education as to the importance and purpose of such re-examinations, but the essential value of the practice cannot be over-estimated clinically or statistically.

Delay in Treatment.

Of the several indices of progress in cancer control, something has already been said about mortality and stage of disease when treatment is begun, in this and earlier reports. Delay in diagnosis and treatment are specially important and although it is not believed that these can be accurately estimated, some useful data are provided by considering the recorded intervals between first symptoms, first consultation, first treatment and treatment at the clinics.

Difficulty in accurate determination of delay in treatment concerns the unreliability of statements as to date of onset of disease (first symptom) as reported by patients. This, however, may be expected to be sufficiently uniform in its total effect to warrant a year-to-year examination of the situation for some indication of improvement. Reduction of any of the intervals mentioned would suggest definite progress toward early diagnosis and prompt treatment. The figures presented below are the first recorded for the clinics as a whole in these reports. While the comparatively large number of cases in which no data are available constitutes a limitation, the findings *are* instructive.

In Table XXII are given the distributions of public and private patients by site in arbitrary groups by duration of symptoms (date of first symptom to date of admission to clinic).

TABLE XXII
DURATION OF SYMPTOMS—BY SITE OF DISEASE*
TREATED CASES—ALL CENTRES—1938

SITE	DURATION OF SYMPTOMS (MONTHS)							N. S.	TOTAL
	<1	1-5	6-11	12-17	18-23	24-35	36+		
	PUBLIC PATIENTS								
Breast.....	5	35	31	14	2	7	12	7	113
Cervix Uteri.....	2	57	27	14	5	8	8	4	125
Corpus Uteri.....	3	8	5	1	1	2	3	4	27
Lip.....	3	21	12	11	.....	3	18	6	74
Tongue.....	2	14	3	4	.....	1	2	1	27
Other Oral.....	2	19	8	5	2	1	4	3	44
Air Passages.....	.....	8	2	2	1	1	1	3	18
Rectum.....	.....	6	4	6	1	1	2	2	22
Skin.....	4	12	16	16	7	17	36	20	128
Ovary.....	.....	7	4	.....	.....	2	.....	2	15
Other Sites.....	8	56	35	20	6	13	31	33	202
All Sites.....	29	243	147	93	25	56	117	85	795
Per Cent....	3.6	30.6	18.5	11.7	3.1	7.0	14.7	10.7	100.0
SITE	PRIVATE PATIENTS								TOTAL
Breast.....	14	81	43	22	2	14	23		30	229
Cervix Uteri.....	3	27	12	5	.....	2	2	14	65
Corpus Uteri.....	.....	7	9	.....	1	.....	.....	11	28
Lip.....	2	54	21	15	1	10	11	17	131
Tongue.....	2	9	3	.....	1	.....	.....	2	17
Other Oral.....	2	17	11	2	.....	2	3	6	43
Air Passages.....	1	7	3	2	.....	2	1	4	20
Rectum.....	.....	9	3	3	1	.....	4	12	32
Skin.....	2	85	51	48	10	40	95	55	386
Ovary.....	2	17	4	.....	.....	1	2	9	35
Other Sites.....	10	63	24	17	7	9	22	63	215
All Sites.....	38	376	184	114	23	80	163	223	1,201
Per Cent....	3.2	31.3	15.3	9.5	1.9	6.7	13.6	18.6	100.0

*Recurrences excluded.

While data for public and private cases are given separately in Table XXII, comparisons between the two groups *totals* are meaningless due to differences in the proportion of the several sites. This much can be said—that only 3-4 per cent. of all cases treated during 1938, reached the clinic within 1 month of the first recorded symptom (or sign). Two thirds had had symptoms (or signs) for six months or more before reaching the clinic.

Consider breast and cervix uteri cases separately. Five public cases reached the clinic within 1 month and 35 per cent. within 6 months. The figures for private cases are 7 per cent. and 47 per cent. In cervix cases only 5 cases of 172 reached the clinic within 1 month. *Half had had symptoms for 6 months or more.*

It would appear that in these two sites there is particularly good evidence to explain the advanced *stages* at which patients are even now presenting themselves for treatment. To this latter situation attention was specially drawn in the Third Annual Statistical Report on Cancer (1938).

Another aspect of the problem is that of delay following the first contact of patients with a physician for cancer. A finer division of time intervals would be desirable in studying this but certain useful observations can be made from the figures in Table XXIII.

TABLE XXIII
TIME SINCE FIRST CONSULTATION—BY SITE OF DISEASE*
TREATED CASES—ALL CENTRES—1938

SITE	TIME SINCE FIRST CONSULTATION (MONTHS)							N.S.	TOTAL
	<1	1-5	6-11	12-17	18-23	24-35	36 +		
	PUBLIC PATIENTS								
Breast.....	47	45	8	3	1	2	1	6	113
Cervix Uteri.....	55	43	12	3	1	2	.....	9	125
Corpus Uteri.....	9	12	2	1	.....	.....	.....	3	27
Lip.....	37	16	3	3	.....	1	3	11	74
Tongue.....	13	11	1	1	.....	.....	.....	1	27
Other Oral.....	20	15	2	1	.....	.....	1	5	44
Air Passages.....	4	8	.....	2	1	.....	.....	3	18
Rectum.....	6	6	4	.....	1	.....	.....	5	22
Skin.....	63	24	7	5	2	2	10	15	128
Ovary.....	3	10	.....	.....	.....	.....	.....	2	15
Other Sites.....	45	72	15	9	4	5	8	44	202
All Sites.....	302	262	54	28	10	12	23	104	795
Per Cent....	38.0	33.0	6.8	3.5	1.3	1.5	2.9	13.1	100.0
SITE	PRIVATE PATIENTS								TOTAL
Breast.....	72	95	13	4	.....	4	8	33	229
Cervix Uteri.....	29	15	5	.....	1	.....	.....	15	65
Corpus Uteri.....	6	7	3	.....	.....	.....	.....	12	28
Lip.....	59	32	4	2	.....	1	1	32	131
Tongue.....	10	5	.....	.....	.....	.....	.....	2	17
Other Oral.....	21	11	2	1	.....	.....	1	7	43
Air Passages.....	6	10	.....	.....	.....	.....	.....	4	20
Rectum.....	8	9	.....	.....	2	2	.....	11	32
Skin.....	190	63	8	13	.....	4	17	91	386
Ovary.....	8	14	1	.....	.....	1	1	10	35
Other Sites.....	51	63	17	3	4	3	4	70	215
All Sites.....	460	324	53	23	7	15	32	287	1,201
Per Cent....	38.3	27.0	4.4	1.9	0.6	1.2	2.7	23.9	100.0

*Recurrences excluded.

The figures indicate the general extent to which delays occur and show that 40-50 per cent. of patients received treatment within one month of the first contact with a physician. Because the data refer to intervals up to the time of treatment at the clinic, the cervix uteri cases present the best index of the situation. In this group, 55 out of 116 "public" cases and 29 out of 50 "private" cases received treatment within a month.

Considerably more data are required before a precise statistical appraisal of the delays which occur between onset of disease, diagnosis and treatment can be effected. The above figures, however, are provocative.

